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APPENDIX

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IN THE

# Supreme Court of the United States

OCTOBER TERM, 1973

No. 73-690

AIR POLLUTION VARIANCE BOARD
OF THE STATE OF COLORADO,
*Petitioner,*

v.

WESTERN ALFALFA CORPORATION,
*Respondent.*

**On Petition for a Writ of Certiorari to the Supreme Court of Colorado**

PETITION FOR CERTIORARI FILED OCTOBER 24, 1973
CERTIORARI GRANTED JANUARY 21, 1974

IN THE

# Supreme Court of the United States

OCTOBER TERM, 1973

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AIR POLLUTION VARIANCE BOARD
OF THE STATE OF COLORADO,
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WESTERN ALFALFA CORPORATION,
*Respondent.*

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DEPARTMENT'S EXHIBIT E

[SEAL]

STATE OF COLORADO DEPARTMENT OF HEALTH
4210 East 11th Avenue, Denver, Colorado 80220
Phone 388-6111

R. L. Cleere, M.D., M.P.H., Director

**CEASE AND DESIST ORDER**

CERTIFIED MAIL

Western Alfalfa Corporation
Mr. Carrol Syverson, Vice-President
Suite 300—Kansas City Board of Trade Building
4800 Main Street
Kansas City, Missouri 64112

Mr. Francis Osburn, District Manager
District Office
Windsor, Colorado 80550

Gentlemen:

Reports of investigation and site visits to the alfalfa dehydrating plants located at or near the towns of Eaton, Windsor, and Berthoud, Colorado, establish that these operations have been in violation of the Air Pollution Control Act since October 19, 1967 and that this was made known to the Western Alfalfa Corporation management following its acquisition of these plants in February 1968; that since that time some air pollution control equipment has been installed and changes in operating procedures initiated with a view of bringing these plants into compliance; that personnel from this department and the Larimer County Health Department have since made numerous visits to these plants, met with representatives of your company and have endeavored through conference, conciliation and persuasion to reduce

air contaminants emanating therefrom to within legal limits; that the emissions from each of these three plants were again evaluated on June 4, 1969 and the following Ringlemann standard readings were made:

*Windsor plant*—The dryer stack emissions were 90% opacity; the grinder stack emissions, 70% opacity and the pelletizer emissions, 50% opacity for a period of 10 minutes.

*Eaton plant*—The dryer stack emissions were 85% opacity; the grinder emissions 70% opacity and the pelletizer emissions 50% opacity for a period of 10 minutes.

*Berthoud plant*—The dryer emissions were 90% opacity; the grinder emissions 50% opacity and the pelletizer emissions 40% opacity for a period of 10 minutes.

Emissions in excess of Ringlemann No. 2 or an opacity of 40% for a period aggregating more than three (3) minutes during any hour is in violation of Sections 66-29-5 (1) and (2), Colorado Revised Statutes 1963 (Vol. 10, 1967 Perm. Cum. Supp.) and may not lawfully be permitted to continue except under such terms and conditions as may be found to be appropriate by the Air Pollution Variance Board; that under the facts and circumstances appearing, it has been determined that the Western Alfalfa Corporation has been given ample time and opportunity to bring its three plants into compliance with the law and that 10 days from and the date of receipt of this order is hereby determined to be a reasonable time within which said company shall be required to cease and desist from such violations;

NOW THEREFORE, pursuant to the provisions of Section 66-29-10 (3), Colorado Revised Statutes 1963 (Vol. 10, 1967 Perm. Cum. Supp.), you are hereby ORDERED and DIRECTED to CEASE and DESIST

from any further violations of the Air Pollution Control Act specifically referred to herein at your alfalfa dehydrating plants at or near the towns of Windsor, Eaton and Berthoud, Colorado, on or before 10 days from and after receipt of this order.

Dated June 16, 1969.

DIVISION OF ADMINISTRATION
COLORADO DEPARTMENT OF
HEALTH

/s/ By Roy L. Cleere
Roy L. Cleere, M.D., M.P.H.
Executive Director

cc: Mr. George D. Blackwood Jr., Attorney
Weld County Health Department
Larimer County Health Department

DEPARTMENT'S EXHIBIT D

June 23, 1969

Air Pollution Variance Board
State of Colorado
Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

**REQUEST FOR HEARING ON CEASE AND DESIST ORDER; WESTERN ALFALFA CORPORATION**

Gentlemen:

Reference is made to the Cease and Desist Order addressed to the undersigned corporation dated June 16, 1969 from the Division of Administration, Colorado Department of Health, respecting the three alfalfa dehydrating plants located near the towns of Eaton, Windsor and Berthoud, Colorado.

The undersigned corporation specifically denies that its operations referred to in the Cease and Desist Order are in violation of the Air Pollution Control Act of the State of Colorado and the hearing requested hereby shall pertain to the question of whether or not such violation exists.

At the subject hearing Western Alfalfa Corporation will be represented by the following attorneys:

Linde, Thomson, Van Dyke, Fairchild & Langworthy
Attention: George D. Blackwood, Jr.
Union National Bank Building
Kansas City, Missouri 64106

Lee, Bryans, Kelly and Stansfield
Attention: Donald D. Cawelti
990 Public Service Company Building
Denver, Colorado 80202

We request that copies of any correspondence pertaining to this matter be sent to the above-named attorneys.

Respectfully submitted—

WESTERN ALFALFA CORPORATION

/s/ Jack Patterson
Jack Patterson
Secretary-Treasurer

cc: Weld County Health Department
Weld County Court House
Greeley, Colorado

Larimer County Health Department
Larimer County Court House
Ft. Collins, Colorado

[THIS COPY FOR]
Roy L. Cleere, Executive Director
Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

fs

DEPARTMENT'S EXHIBIT A

[SEAL]

STATE OF COLORADO DEPARTMENT OF HEALTH
4210 East 11th Avenue, Denver, Colorado 80220
Phone 388-6111

R. L. Cleere, M.D., M.P.H., Director

**NOTICE OF HEARINGS RESCHEDULED
BEFORE
THE AIR POLLUTION VARIANCE BOARD**

CERTIFIED MAIL

Mr. C. M. Harmon, President
Colorado Alfalfa Products Company
Milliken, Colorado 80543

Mr. Jack Patterson, Secretary-Treasurer
Western Alfalfa Corporation
Suite 300—Kansas City Board of Trade Building
4800 Main Street
Kansas City, Missouri 64112

NOTICE is hereby given that the Air Pollution Variance Board will hold separate public hearings on September 11, 1969, in Room 412, Colorado Department of Health Building, 4210 East 11th Avenue, City and County of Denver, Colorado, to hear and determine the respective requests of the above named addressees for hearings pursuant to the original notice of hearing heretofore given, dated July 28, 1969, and which said scheduled hearings were continued at respondents' requests and are

now hereby *rescheduled* in accordance with the following time schedule:

| | |
|---|---|
| Colorado Alfalfa Products Company | 10:00 a.m. September 11, 1969 |
| Western Alfalfa Corporation | 2:00 p.m. September 11, 1969 |

Dated August 15, 1969.

/s/ George J. Dwire,
George J. Dwire, D.D.S.
Chairman
Colorado Air Pollution Variance Board

DEPARTMENT'S EXHIBIT C

[SEAL]

STATE OF COLORADO DEPARTMENT OF HEALTH
4210 East 11th Avenue, Denver, Colorado 80220
Phone 388-6111

R. L. Cleere, M.D., M.P.H., Director

**NOTICE**

In compliance with the provisions of the "Air Pollution Control Act" Section 8 (1) (C), Session Laws of Colorado, Second Regular Session 1966, *NOTICE* is hereby given Department of Public Health has designated the following legally described area in Larimer and Weld Counties, State of Colorado, in which the ambient air standards set forth in Section 4 of the above cited Act are not being met, and in which the emission standards set forth in Section 5 and the penalties prescribed in Section 15 of said Act, as amended by Senate Bill No. 380, 46th General Assembly (1967), shall be in effect as provided therein, to wit:

> Commencing at the Northwest corner of Section 6, Township 9 North, Range 70 West; thence East along the section lines approximately 18 miles to the Northeast corner of Section 1, Township 9 North, Range 68 West; thence South along the section lines approximately 6 miles to the Southeast corner of Section 36, Township 9 North, Range 68 West; thence East along the section lines approximately 24 miles to the Northeast corner of Section 1, Township 8 North, Range 64 West; thence South along the section lines approximately 48 miles to the Southeast corner of Section 36, Township 1 North, Range 64 West; thence West along the section lines approximately 30 miles to the Southwest corner of Section

31, Township 1 North, Range 68 West; thence North along the section lines approximately 18 miles to the Northwest corner of Section 6, Township 3 North, Range 68 West; thence West along the section lines approximately 12 miles to the Southwest corner of Section 31, Township 4 North, Range 70 West; thence North along the section lines approximately 36 miles to the point of beginning;

/s/ Dr. George J. Dwire,
George J. Dwire, D.D.S.
Chairman
Air Pollution Variance Board

/s/ Roy L. Cleere
Roy L. Cleere, M.D., M.P.H.
Director
Colorado State Department of
Public Health

Dated August 4, 1967

DEFENDANT'S EXHIBIT #4

RONNING ENGINEERING COMPANY, INC.
7009 West 81st Street
Overland Park, Kansas 66204
913 649-3543

October 16, 1968

Mr. Carrol Syverson
Western Alfalfa Corporation
4800 Main—Suite 300
Kansas City, Missouri 64112

Dear Carrol:

The following is a report of the procedures and results of air pollution tests performed at the Windsor, Eaton, and Berthoud, Colorado Dehy plants owned and operated by Western Alfalfa Corporation.

The tests were performed according to Section 5. (2), (a), (b) and (c) of the Colorado State Air Pollution Control Act with the following results.

Windsor Plant: Test periods 4:00 P.M. to 5:30 P.M., October 9, 1968, and 8:00 P.M. to 11:00 P.M., October 10, 1968.

Twelve sightings were made with the Ringlemann Smoke Chart throuhout this period. The dehydration system and pellet mill system were started and stopped two times during this test period for the purpose of evaluating air pollution during its worst condition.

Throughout the periods of normal operation, all tests showed smoke density and dust density to be less than a No. 1 on the Ringlemann Chart. Two sightings were made during shutdown proceedings which showed an apparent smoke density between 1 and 2 on the Ringlemann Chart.

Eaton Plant: Test period 5:40 P.M. to 6:40 P.M., October 9, 1968.

Four sightings were made with the Ringlemann Smoke Chart and none was in excess of No. 1.

Berthoud Plant: Test period 11:30 A.M. to 1:00 P.M., October 10, 1968.

Six sightings were made with the Ringlemann Smoke Chart and all were less than No. 2 and 3 sightings were less than No. 1.

The Ringlemann type test is difficult to use effectively on discharges of high specific humidity because of the complete opacity of water vapor condensate. Due to this problem, the Ringlemann Sightings must be made after the water vapor has dissipated except during start and stop proceedings.

In general I find the Windsor and Eaton Plants to be in the top 10% of dehy plants across the nation from a standpoint of Air Pollution Control. The Berthoud Plant is at about the 40% point of Air Pollution Control compared with other dehy plants. That is, it is cleaner than 60% of the dehy plants.

I also performed combustion analysis of the stack gases at the Windsor Plant. During normal operation, there were no measurable combustibles with an oxygen level of 14%.

Please call for any further details concerning these tests.

Sincerely yours,

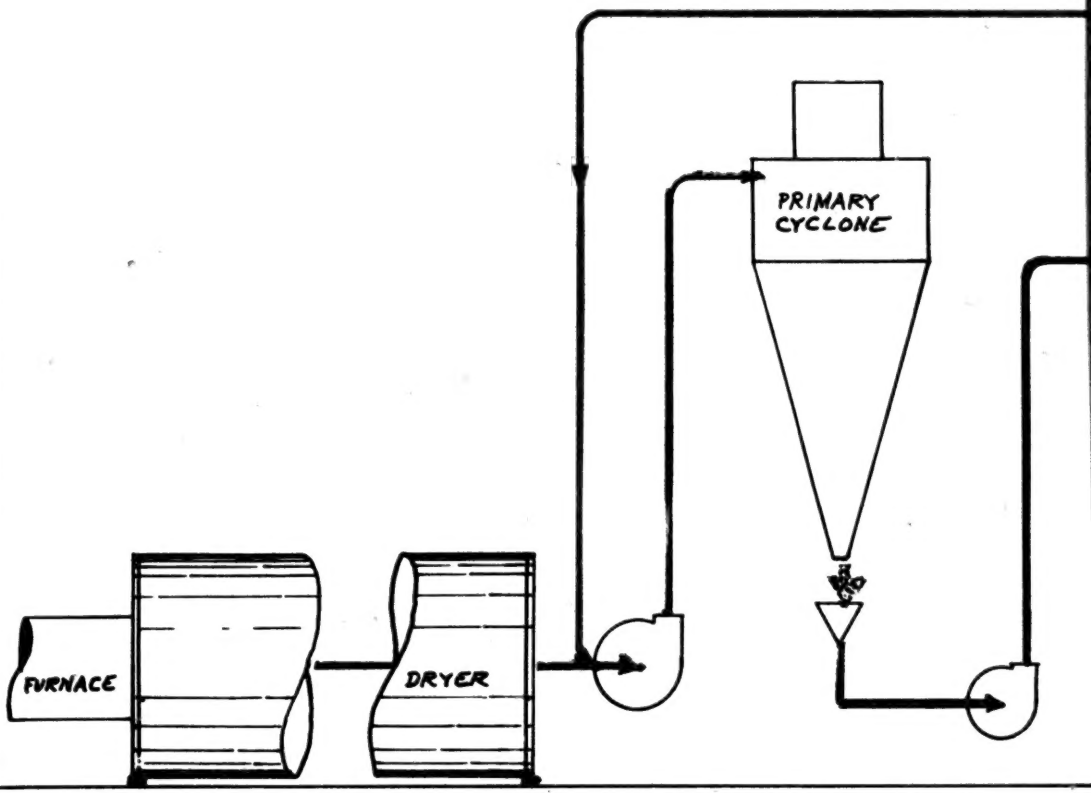
Richard L. Ronning

RLR:FW
Enc.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

/s/ Richard L. Ronning
Date 10/16/68 Reg. No. 7223

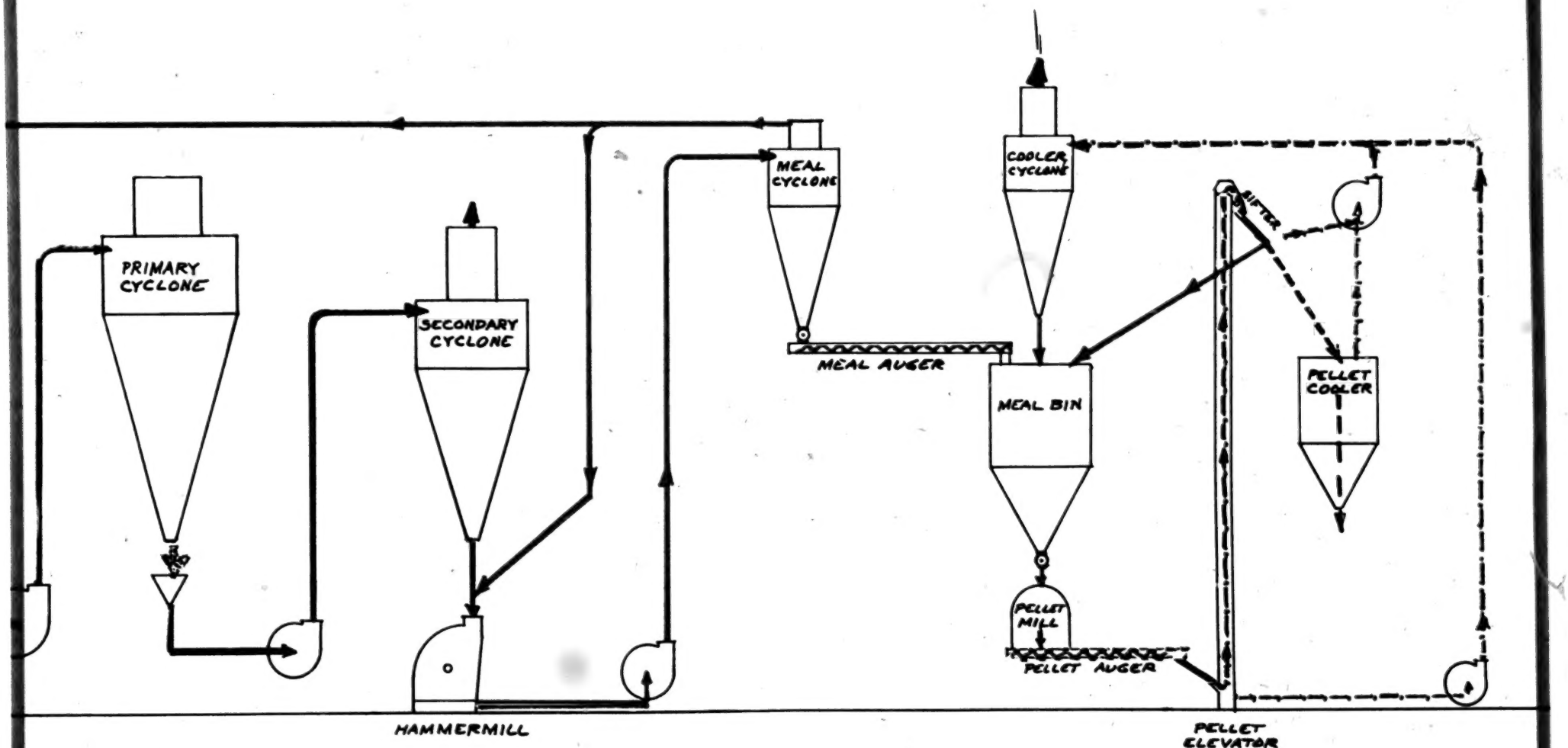
TYPICAL WESTERN ALFA
OF COLORADO . WINDS
RECIRCULATION SYSTE




CONVEYING COLORS:

DRYER SYSTEM
SECONDARY CHOPS
MEAL
PELLETS
PELLET AIR

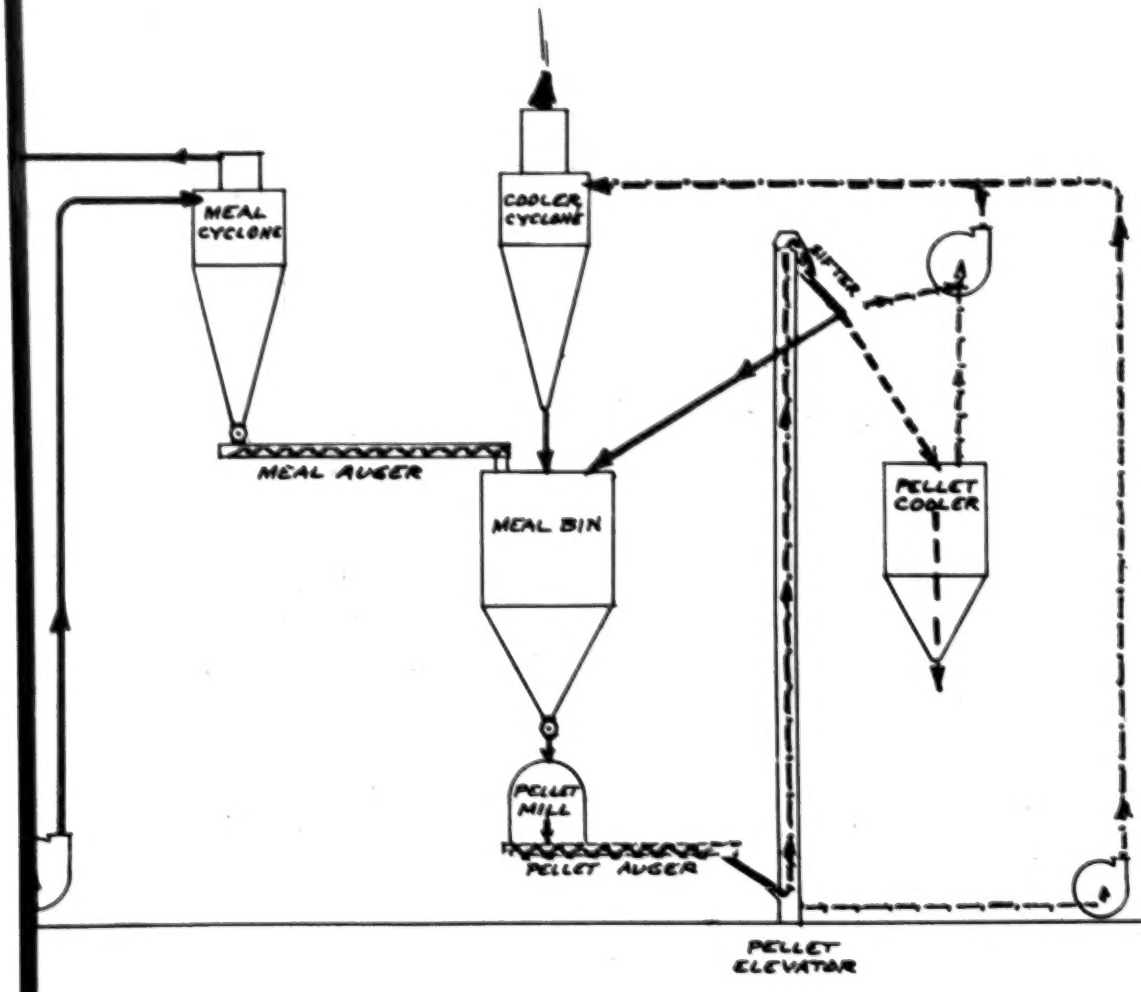
TYPICAL WESTERN ALFALFA CO. DRYER PRODUCTION FLOW DIAGRAM : WELD & LARIMER COUNTIES OF COLORADO . WINDSOR SHOWN , BERTHOUD & EATON HAVE TWO HAMMERMILLS WITH TWO RECIRCULATION SYSTEMS SAME AS THE ONE SHOWN IN RED FOR WINDSOR.



CTION FLOW DIAGRAM : WELD & LARIMER COUNTIES
D & EATON HAVE TWO HAMMERMILLS WITH TWO
NE SHOWN IN RED FOR WINDSOR.



DEFENDANT'S EXHIBIT =5




BY RONNING ENGINEERING CO., INC.
D.D.S. 2/6/69

DEFENDANT'S EXHIBIT #6

TU and End

Writers DNVR
Mr. George Blackwell
Letter from Dr. Wayne Miller, Mayor of Windsor

September 11, 1969

To whom it may concern:

I am sorry that I am unable to be at the hearing today, so I take this means of commenting on the hay mill located at Windsor.

First, let me identify myself. I have lived in Windsor most of my life, having gone to Junior and Senior High School and graduating in 1945. After completing service in the Navy and obtaining my degree in Veterinary Medicine from CSU, I returned to Windsor in 1954 and have been in practice here since that time.

I have served in many civic and church activities and am now in my sixth year (third term as Mayor) in City Government. During by business and civic activities, I have never received a complaint about the operations at the hay mill. Most people are glad that they are here to provide jobs and provide a market for the alfalfa products.

It has been our observation that they have always been very interested in improving the plant as new developments occur. This includes matters concerning air pollution.

Frankly, as a casual observer who passes the operation at least two or three times daily during the course of my work, all I can see is white steam, and this dissipates very quickly.

It is the sincere desire of this community that the hay mill be allowed to continue to operate in our community. We realize that they must operate under certain regulations, and we are confident that they can do so.

Respectfully,

Wayne Miller, D.V.M.
Mayor

WWM:PM
Western Alfalfa Corporation, Windsor
11:30 A.M.

STATE OF COLORADO
DEPARTMENT OF PUBLIC HEALTH
AIR POLLUTION VARIANCE BOARD

In the matter of:

WESTERN ALFALFA CORPORATION

TRANSCRIPT OF PROCEEDINGS

APPEARANCES:

DAVID FOSTER
Legal Counsel
Department of Public Health.

LEE, BRYANS, KELLY and STANSFIELD
by
DONALD D. CAWELTI,
and
LINDE, THOMAS, VAN DYKE, FAIRCHILD and LANGWORTHY
by
GEORGE D. BLACKWOOD, JR.,
Counsel for Western Alfalfa Corporation.

AIR POLLUTION VARIANCE BOARD:

Clair H. Iverson, Chairman; E. McDonald Chenault, Dr. Louis C. Gibbons, Dr. Harvey W. Phelps, Arthur M. Krill, Thomas R. Heaton and A. George Setter.

Proceedings had before the Air Pollution Variance Board of the State of Colorado, at the Department of Health, 4210 E. 11th Ave., City and County of Denver, State of Colorado on September 11, 1969, commencing at approximately 2:30 p.m.

(AND THEREUPON, the following proceedings were had:)

[3] THE CHAIRMAN: The meeting will come to order, please.

This is a meeting of the Colorado Air Pollution Variance Board to hear the matter of Western Alfalfa Corporation of Kansas City, Missouri.

Members of the Board present: Mr. Krill, Mr. Setter, Mr. Heaton, Mr. Chenault, Dr. Phelps and I am Mr. Iverson.

The Board is represented, and the Department of Health is represented by Mr. Dave Foster who is counsel for the Department of Health.

Western Alfalfa is represented by Mr. Donald D. Cawelti and Mr. George Blackwood from Kansas City.

MR. CAWELTI: Do I understand, Mr. Foster, you are acting as counsel for both the Board and for the Staff.

MR. FOSTER: I am attempting to, sir.

(WHEREUPON, documents were marked Department's Exhibits A, B, C, and D attached hereto.)

MR. FOSTER: The Board is requested to take judicial notice of the Air Pollution Control Act, Chapter 66 Article 29 of the Colorado Revised Statutes 1963, 1967 permanent cumulative supplement Volume 10, and Senate Bill 179, 47th Colorado General Assembly as amended.

The Board is also requested to take judicial [4] notice of the official orders of the Colorado Department of Health designating the specific areas where the standards are in effect in both Larimer and Weld Counties of Colorado.

I offer in evidence that's been marked.

MR. CAWELTI: I have no objection to any of your exhibits so far.

MR. FOSTER: Those are Department's Exhibits A, C and D. I won't offer Exhibit B. Those are the designation of the area, copy of the request for variance by Western Alfalfa and notice of hearing.

MR. CAWELTI: That's not a request.

MR. FOSTER: I will read the first and second paragraphs of this letter:

"Re: Request for hearing on cease and desist order, Western Alfalfa Corporation. Gentlemen: Reference is made to the cease and desist order addressed to the undersigned corporation dated June 16, 1969 from the Division of Administration, Colorado Department of Health, respecting the three alfalfa dehydrating plants located near the towns of Eaton, Windsor and Berthoud, Colorado.

"The undersigned corporation specifically denies that its operations referred to in the cease and desist order are in violation of the Air Pollution Control Act of the State of Colorado and the hearing requested hereby shall pertain to the question of whether or not such violation exists."

[5] (WHEREUPON, a document was marked Department's Exhibit E attached hereto.)

MR. FOSTER: We offer in evidence what has been marked Department's Exhibit E, being a copy of the cease and desist order.

If the Board has no objection, I have additional copies of the order and will pass it around.

MR. CAWELTI: I have no objection.

MR. FOSTER: Call Mr. Taylor as our first witness.

First, I don't believe any opening statement is necessary.

MR. CAWELTI: No, that's all right.

MR. FOSTER: Mr. Taylor.

MR. CAWELTI: Well, perhaps while you are sorting your papers, I'll just make a brief comment. We were all here during this morning's proceedings, and in one respect at least, this is similar to this morning's case. We deny that we are violating the air pollution control standards. This is a hearing then on the denial of the existence of the violation, unlike, I think, most of

the hearings that you have. This is not a request for a variance. We stand here as accused and we deny we are guilty.

THE CHAIRMAN: Might I ask if the Stearns-Roger report is to be introduced as evidence here in the [6] hearing?

MR. CAWELTI: We found out yesterday afternoon Stearns-Roger also made an examination for this other company. It is not our intention to introduce the report. It is our intention, however, to have Mr. Weimer testify as a witness, as this morning, to state to the Board the study which he made and the conclusions which he came to. I think that if we proceed in this way, we will be able to clarify perhaps little bit what, if any, objections there may be to his testimony. Questions to him will be pointed and when he is asked to state the result of any test that he made or describe what he saw, I think we will pinpoint in this way whether he is qualified to make that observation or make that test or state the results of it.

I think we can avoid some of the problems we ran into this morning by proceeding in this manner.

MR. HEATON: Mr. Weimer then will confine himself to the engineering findings only.

MR. CAWELTI: Yes, he is an engineer, and he will leave the law to me and I will leave the engineering to him.

THE CHAIRMAN: Mr. Foster, will you object to this procedure?

MR. FOSTER: I will have to see what questions are asked, what is presented. I can't prejudge at this point.

[7] JAMES R. TAYLOR,

first being duly sworn to state the truth, the whole truth and nothing but the truth, testified on his oath as follows:

DIRECT-EXAMINATION

BY MR. FOSTER:

Q. State your name and occupation.

A. James R. Taylor, air pollution specialist, Department of Public Health.

Q. How long have you been so employed?

A. Something over two years.

Q. What is your formal education and qualifications?

A. I have a B.S. Degree in chemistry and biology.

Q. Have you attended the smoke school that was conducted by the Department with reference to evaluation of particulates under the Ringelmann standards?

A. I have.

Q. How many of the schools have you attended?

A. Probably ten or twelve.

Q. Are you a certified observer by the Department and so certified by them?

A. Yes.

Q. Are you familiar with the several plants of the respondent corporation at Eaton, Colorado, Windsor, Colorado and Berthoud, Colorado?

A. Yes.

[8] Q. Have you from time to time visited these plants in connection with your official duties with the Department?

A. I have.

Q. Did you visit the Eaton plant in October of 1967?

A. I did.

Q. What, if anything, did you observe with reference to the operation of the plant?

A. The Eaton plant, on the 19th of October, I noticed that the time density relationship for the pelletizer was 3½ Ringlemann and they were sent a notice of violation at that time.

Q. You speak of the plant at Eaton. Would you describe what kind and the type of operation it is and

what the particular emissions were that you observed from it.

A. The Eaton plant is an alfalfa dehydrating plant.

Q. Were there emissions coming from a stack or from dehydrating units, or where were the emissions coming from?

A. From the dryer and from the grinder.

Q. Did you talk to anyone while you were at the plant at that time? Did you have any conversations with anyone concerning it?

[9] A. Yes. I talked with the plant manager. I don't have his name.

Q. Did you visit the Windsor plant that belongs to this respondent company?

A. I did.

Q. When was that?

A. September 11, 1967.

Q. What kind of a plant is that?

A. It's an alfalfa dehydrating plant.

Q. They have dryers.

A. Yes.

Q. What did you notice, if anything, as to violations of the law at that place?

A. Their's was 80 percent opacity. And from the ball mill or the grinder, 2½ Ringlemann from the dryer.

Q. Did you talk to the operator there?

A. Yes, sir.

Q. What was the nature of that conversation?

A. It was Mr. Hudson. At that time I think we asked them for a schedule for proposed controls for this plant.

Q. Did you visit the Berthoud plant that belongs to this respondent company?

A. Yes, sir.

[10] Q. When was that and what did you notice at that time?

A. October 30, 1967 and noticed them for violation.

MR. CAWELTI: Objection, your honor. That's the point of this hearing, to determine whether there is a violation. I will object to the witness' statement in that regard and move that it be stricken, him saying that there is a violation. His duty is to describe what he saw and it is this Board's job to determine whether there was a violation or not.

MR. FOSTER: I will accede to that.

Q. What did you notice with reference to the density of the emissions in reference to the Ringlemann standards at the Berthoud plant.

A. I'm looking—

Q. Well let that go for the moment then. Let me ask you this, Mr. Taylor, did you in 1967, and 1968, and up to and including June 1969 make periodic visits to these various plants that belong to the respondent company?

A. Yes, I did.

Q. And you made Ringlemann observations, did you, of the particulates?

A. Yes, sir, I did.

Q. Did you or did you not confer with and counsel [11] with the operating management of these plants from time to time in an effort to improve the emissions that were coming from their plant?

A. Yes, sir.

Q. Were any improvements made in the plants?

A. Yes, sir.

Q. Can you tell us briefly what was done to improve these plants along the way?

A. Shall we take it plant by plant?

Q. Anyway you like.

A. This past year the plant at Berthoud installed a new dryer and triple pass dryer and they revented, recirculated the grinder emissions back through the grinder collector, I mean the dryer collector.

They have done this, basically, on all three of the plants.

They were planning on the installation of spray kind of thing, water scrubber part to the grinder from the dryer. We discussed the feasibility of it and whether it would work. They have done some work, considerable work in controlling the emissions from all three of the plants.

The other plants, two plants at Easton and Windsor had already had the triple pass drums in them installed. But the one at Berthoud was a single pass which emitted considerable amount more of the emissions.

[12] I might add here that they probably have done as much or progressed far along in this field as anyone and I know, or our staff knows of but they are still in violation from the dryer—

MR. CAWELTI: This is a bad word.

A. From the emissions from the dryer and from the grinder.

But they have controlled them. They have made some efforts and they have made considerable amount of progress in controlling of the particulates.

Q. Go on to the next plant.

A. I think I covered, or I thought, covered all three of them at the same time.

Q. Did you make any stack emission evaluations of the Windsor plant on or about June 4, 1969?

A. Yes, sir, I did.

Q. What was the result of your observations?

A. On the 4th of June '69 Windsor plant dryer stack emissions were 90 percent opacity; grinder stack 70 percent opacity; and the pelletizing stack 50 percent opacity for a period of 10 minutes.

Q. Did you make similar observations at the Eaton plant on June 4, 1969?

A. Yes, sir.

Q. Can you state what they were?

[13] A. Dryer stack emissions, 85 percent; grinder emissions, 70 percent; and the pelletizing stack 50 percent for a period of 10 minutes.

Q. Did you make any similar observations at the Berthoud plant on June 4, 1969?

A. I did.

Q. Will you state what they were.

A. Dryer emissions, 90 percent opacity; the grinder emissions, 50 percent opacity; the pelletizing stack emissions 40 percent opacity, for a period of 10 minutes.

Q. Where were you when you made these observations?

A. On the premises.

Q. Did you make them from one point, or a single point or more than one point on the permises?

A. Well, they were from more than one point. You couldn't see all of it from one spot, no.

Q. That was the last evaluation that you made of this plant? Is that right?

A. Yes, sir.

Q. Has the Department worked with the management of Western Alfalfa in an effort to bring them into compliance? Have you furnished them with literature and information and engineering services?

A. Yes, sir. We have had several conferences with their management and with their legal counsel and with [14] their consulting engineering firm.

Q. Was there anyone with you when you made the observations on June 4, 1969?

A. No, sir, just myself.

Q. Do you know of your own knowledge whether or not other personnel of the Department have visited the plant and made similar observations from time to time?

A. Yes, sir.

Q. Who was that party or parties?

A. Mr. Bishard, the engineer from the air pollution section.

Q. Was there anyone from the local enforcement area with you when you visited these plants?

A. Yes. It has been the habit and the practice to work with the local agencies.

Q. Whenever there was any stack analysis or any particulate analysis made of the emissions on these plants by the Department of Health, have you made any attempt to make correlations of the Ringlemann with the particular emissions?

A. No, sir.

Q. Were you asked to participate in any particulate emissions test of theirs?

A. No, sir.

MR. FOSTER: I believe that's all.

[15] MR. HEATON: Could you ask Mr. Taylor, little more detail on the 10 minutes observation? Was that observed periodically or total time in violation?

A. That was the total time of the observation.

MR. HEATON: Is that the total time that you observed on all of the stacks? I mean, did you watch this stack for 10 minutes, and this stack for 10 minutes or did you just stand there and watch all three of them for a total of 10 minutes?

A. That depends on where you are standing. You can't see all three of them. You have to vary your spot of your location, where you are standing. Because in several instances they put out a terrific amount of steam plume and the steam plume obscures the rest of them until you get on the other side of it. And sometimes you have to wait until the wind changes. So it would be from each stack. Sometimes it would be at the same time and other times, each individually. I never broken it down to each one.

DR. PHELPS: You record your readings in your notes from the individual stacks then that are emitting their emissions. You record them separately?

A. I take them as a rule from the dryer, and from the grinder, and from the pelletizer.

DR. PHELPS: You record each one of those [16] observations separately then.

A. Yes, sir. As a matter of fact, I think the one I gave you on June 4 were made from the dryer stacks and from the grinder stack and the pelletizer stack.

MR. HEATON: Is it stack or stacks for each one? Are there a total of three stacks involved for this Berthoud plant?

A. Three separate stacks, yes, sir. A stack for the dryer, stack for the grinder, and a stack for the pelletizer.

MR. HEATON: And is this the same for the other two plants involved here?

A. Yes, sir.

BY MR. CHENAULT:

Q. In your testimony, I believe you stated there was a representative from the local authorities with you at the time these observations were made. Is this correct, sir?

A. Yes. On most of the visits. Yes, it is the practice of the Department to work in conjunction with the local agency. Sometimes it has not been possible to work this out because they were not available.

Q. Was the representative who was with you at the time, is he here, do they have a representative here today?

[17] A. They have changed their personnel so that, particularly the one in Weld County. We are talking about two different counties here that's involved. The Berthoud plant is in Larimer County and they didn't have any organized health department or any personnel working there on this. So the state did the total service there. In Weld County, we worked with the Weld County Health Department at the beginning, the onset and we worked with one individual who is now not

working there any more since. But sometimes they had other activities to do and they went their way and we went on with our work. But we tried to work together on the things much as possible.

DR. PHELPS: In Weld County, did you do this at the request of Weld County or did you hear any complaints, or what was it?

A. On this, originally?

DR. PHELPS: Yes.

A. Weld County was made or designated as a basin, I think in July of '67. And then immediately after that, that's when we started doing a complete inventory of the county.

DR. PHELPS: But had you heard any complaints?

A. No, sir.

MR. FOSTER: I have nothing further of this witness.

[18] CROSS-EXAMINATION

BY MR. CAWELTI:

Q. I would like to talk with you, Mr. Taylor, if I could for just a minute, about one of the plants in particular.

All three of the plants are pretty much the same in the type of operation, are they not?

A. Yes, they are now. The one in Berthoud, I think, was a single pass drum until lately.

Q. But when you made your first inspection in 1967, and when you made your inspection in June of this year, at both times, all three were operating substantially the same.

A. Not at the beginning, they weren't. Not in '67. The Berthoud plant was considerably worse than the other two plants, by the fact it was just a single pass drum.

Q. Well, in 1967, were not all three plants single pass drum in September of 1967?

A. I can's recall. But I do remember that the Berthoud plant was.

Q. You can't recall the others?

A. Eaton or Windsor plant was— No, I can't recall, sir.

Q. Your first notice on the Windsor plant [19] indicated a Ringelmann reading, I take it by you, of 2 to 2½ at the Windsor plant, did it not?

A. In September of '67?

Q. Yes.

A. Let me look—yes, sir. Mr. Connors and I both, were there at that time.

Q. I take it then that that was your joint reading and you both came out about that reading.

A. Yeah.

Q. And translating that, that would be 48, 50 percent opacity?

A. Forty to 50 percent.

Q. Little bit over the minimal of 40.

A. Yes.

Q. Did you examine this plant and the others again in their operating season of 1968, did you not?

A. Yes.

Q. And Mr. Bishard was with you?

A. On several occasions, yes.

Q. And Mr. Bishard sent to the company a letter dated July 12.

A. What year?

Q. July 12, 1968. He stated in that letter "We note with interest you have made marked progress in the control of dust and smoke emission in the two plants in Weld [20] County."

That would be the Windsor plant and the Eaton plant?

A. Yes.

Q. Do you agree with that at the time?

A. I can't recall this one particular— They had made marked improvement on their operations and I think this was after the recirculating.

Q. That was put in on the Windsor plant.

A. Yes.

Q. Do I understand correctly that in the fall of 1967 when this all started, they were kind of lined up at 40 or 50 percent opacity at the Windsor plant?

A. At that particular time of the reading, yes.

Q. And by July of next year, they had made marked progress?

A. What date?

Q. July 1968, sir. You don't indicate in here the date of your inspection in July.

I take it it was within a week or two prior to July 12, the letter.

Do you have the July 12 letter in front of you?

Now I don't remember what the last question [21] was, but I should go on here.

I take it by "marked progress," you are referring to the progress since the examination you made of the previous fall in September?

A. Yes, sir, I would assume this is what Mr. Bishard was referring to.

Q. And I think that it also makes the comment that you noted with dismay that the Berthoud plant had not made equal progress?

A. Yes, sir.

Q. You indicated that since the date of that letter, the Berthoud plant has made the same changes earlier made at the Eaton and Windsor plants, the triple pass drums circulation?

A. Yes, sir.

Q. Can you explain to me how, in view of the examinations you made there time after time, your careful observations that you have made, that these plants that were at 40 or 50 percent opacity, the Windsor plant in 1967, they made marked progress in 1968, what in the world happened to give your reading in June of this year worse yet?

A. I believe you are aware of the fact that there are several things that can change the operation and the emission of the plant. I think that any of of the alfalfa boys in the business will tell you their first [22] cutting is usually rougher, a rougher cutting with grass and weeds and this type of thing.

I would venture to say that this June 4 reading was probably one of their first cuttings. I think they start somewhere in the latter part of May to the first part of June sometime. I think this varies with the seasons.

Q. Are you saying then that the reading you made in June may not have been typical of the plant's operations?

A. I think it would certainly be different readings as you get rid of the chaff out of the field and you begin to get better hay. I'll agree with you, yes, the first cuttings are usually little rougher.

Q. Did you make pictures of any of these plants when you examined them in June of this year?

A. Oh, I made a couple of them here. I don't know that they will really show anything. I don't know whether the attorney wants to submit them as any evidence.

Q. I take it you decided not to submit them on your direct evidence of your case.

A. No, I wouldn't say that, no.

MR. CAWELTI: Do you mind if I take a look at them?

MR. FOSTER: Go ahead.

MR. CAWELTI: May we have these marked, please.

[23] (WHEREUPON, photographs were marked Department's Exhibits F, G and H attached hereto.)

Q. Could you state where those pictures were taken and on what date?

A. This was taken June 4, Exhibit H was taken June 4, 1969 at 3:35 p.m., Western Alfalfa, Windsor,

taken by me, dryer 90 percent opacity, approximately 85 degrees Fahrenheit.

Q. What is the next one?

A. Western Alfalfa, Eaton, 6-4-69, 3:10 by J. R. Taylor, temperature 85 degrees Fahrenheit, Exhibit G.

Western Alfalfa, Eaton, 6-4-69 3:15, taken by J. R. Taylor, Exhibit F, temperature 85 degrees.

MR. CAWELTI: I offer these in evidence.

Q. Mr. Taylor, are these photographs true and accurate representations of what you saw at the time?

A. One of them I can't agree, it doesn't really tell you too much.

Q. This Exhibit G, taken so far away?

A. Taken from the highway at considerable distance.

Q. The only thing you can see is the steam. Is that it?

A. I don't even know that it's steam.

MR. CAWELTI: With that reservation, I offer [24] these three exhibits.

MR. FOSTER: We'll leave it go in the way they are.

Q. Holding here what is marked as Department's Exhibit F, this was taken of the Eaton plant.

A. Yes.

Q Just so we have some idea of what this Ringlemann test means, can you refer back to your notes and say what the Ringelmann reading was that you found from this plume? This is at Eaton, June 4, reading from the main dryer stack.

A. June 4, Eaton, dryer stack, 85 percent.

MR. CAWELTI: If the Board will examine this, this is what he testifies to as 85 percent. I think you can see quite clearly, you can see quite clearly through the plume and what is behind.

Q. Now I would like to talk little bit about these emission source, Mr. Taylor, if we could.

I believe you testified this morning concerning the case that was held then, the Colorado Alfalfa Products

plant, that they had trouble with their emissions at the grinder source.

Am I correct that that is the one they admitted violation? Do you recall?

A. I can't remember which one now.

[25] Q. Do you remember any special arrangements that this respondent, or this defendant had made with regard to any dust problems concerning its grinders on all three plants?

A. Are you talking about recycling it back through—Yes, they have installed.

Q. Could you describe what that improvement is that avoids the problem we talked about this morning? What is this recycling?

A. I think what it's doing is venting the stack from the grinder instead of going into the atmosphere, it recirculates it back through the dryer and then back into the grinder.

Q. And that source of emission is entirely eliminated through the recirculation?

A. I wouldn't say totally eliminated, I don't think totally.

Q. In order to do this, the recycling, this vent is closed entirely, is it not?

A. I can't recall that it's been closed 100 percent. I can't state that.

I think Mr. Bishard of our engineering staff would know more about this. He's the one that worked on this.

Q. Do I understand that these dryers of Western [26] Alfalfa are also the dryers you discussed this morning, which is different from the ones of this morning?

A. I think the ones this morning are triple pass.

Q. Mr. Taylor, when you are making these observations, and I am thinking particularly of opacity, there is quite a bit of difference between the three types of emissions, three sources of emissions from each of the plant,

is there not? What I am thinking of is one of them is intermingled with steam, the other two are not.

A. Right.

Q. Which of that has steam?

A. Ones from the dryer.

(WHEREUPON, a photograph was marked Defendant's Exhibit No. 1 attached hereto.)

Q. Mr. Taylor, the reporter has marked here, Defendant's Exhibit No. 1 and I will hand this to you. Do you recognize that as the Windsor plant?

A. I think it's the Windsor plant.

Q. Would you take my word for it?

A. Certainly, if you say so, sir.

Q. By turning the picture so the Board could see it, could you kind of identify the emission source that we are talking about here. There are three different places that you are talking about at this plant. What are those as [27] you look at that picture?

A. This is the dryer, this is the drum, this is the recirculating pipe going back from that to the grinder, those are the cyclones on the grinder.

Q. Sometimes called the chop collector cyclone.

A. Yes.

And I believe that these two here, one of them is off the pelletizer.

Q. Now, you and I visited that plant in July of this year.

A. I think the first of July or thereabouts.

Q. Is that picture fairly typical of what you are seeing there, as you look at the plant?

A. I would say, on some occasions probably looks similar.

Q. And you do have a problem here of the dryer stack, don't you, of intermingling of steam or whatever might come out?

A. Particulate matter, you mean blue haze at the end.

Q. I'm color blind and so I couldn't talk to you about colors.

When you make a Ringelmann reading, where you have that mixture of steam and particulate matter, how do you tell what you are reading, the steam or particulate?

[28] A. You have to read at the point of steam dissipating.

Q. Does the test require that you read the emission from the stack? Isn't that in the instruction manual, on that card you use?

A. What card? I never used one.

Q. But you have seen them?

A. I have seen the cards, yeah.

Q. You don't remember that that was written right on the card?

A. No, I never read it.

Q. Well, the steam itself that comes out, that is an air contaminate, is it not?

A. No, sir.

Q. To the extent you would read steam as contaminate, you would get a misreading?

A. If I read that plume at the point of the stack, had to be 100 percent opaque.

Q. Principally steam.

A. What percent steam and what percent particulate is pretty hard to—

Q. Is pretty hard to say?

A. The percentages of them, each one, uh-huh.

Q. In that respect it's quite difficult using the Ringelmann then, takes quite a bit using that on this stack [29] here, for example, where there's no steam from the pelletizer stack.

A. I think there's some steam coming off the pelletizer.

Q. Have you ever seen steam coming out of the pelletizer stack?

A. I think this is the boiler plant that injects steam in the pelletizer.

Q. You can see something coming out of there right now, can't you?

A. I can't see it, sir. But if you say so I'll take your word for it.

Q. Here is one emission source that you talked about. Here is the other. Where is the third?

A. Top, beginning of the other cyclone.

Q. You can't see anything from that one because of the steam problem mainly.

A. I wouldn't say steam. Maybe the picture didn't show it.

Q You say you made these observations for a period of 10 minutes in June of this year. Even in a period of 10 minutes there will be quite a bit of change, from one minute to the next on what the stacks look like?

A. Oh, some cases they might be, yes.

Q. There may be more steam or less steam, or more [30] heat or less heat in the dryer?

A. All the time. It changes from time to time, yes.

Q. I think you indicated you made no analysis of whatever it was you were seeing coming out from the stacks?

A. No, we haven't.

Q. That's been sent to any chemical laboratory to determine what is in it?

A. No.

Q. It would be your expectation that it will be alfalfa chaff or some kind of dust?

A. Out of where?

Q. From the various emissions, the source of all three of them.

A. Well, I think from the dryer, probably several things, other than alfalfa, might be some type of weeds, dust, that is collected. But primarily I assume it would be alfalfa since that's the primary product.

Q. There is nothing toxic about alfalfa, is there?

A. I'm not qualified to say that. I'm not a toxicologist.

Q. It's used for food, isn't it?

A. Cattle feed, yes.

[31] MR. CAWELTI: Did I offer this in evidence?

MR. FOSTER: Might as well, they have been looking at it.

Q. Mr. Taylor, we were talking little bit ago during your direct-examination, about your visit to the Berthoud plant in 1967. Do you recall that testimony?

A. Yes, sir.

Q. I think at that time I made the objection about what you saw there, other than the Ringelmann test. Have you examined your files and can you state whether you have any Ringelmann test from that inspection of Berthoud in 1967?

A. No, sir, I haven't examined. Would you permit me?

Q. Take your time.

THE CHAIRMAN: I think we will take a short recess at this time.

(WHEREUPON, there was a short recess after which the following further proceedings were had:)

(WHEREUPON, photographs were marked Defendant's Exhibits No. 2 and No. 3 attached hereto.)

THE CHAIRMAN: We will declare the meeting in order.

MR. CAWELTI: I think we left off with Mr. Taylor [32] examining his file to see if he could find any Ringelmann tests, if any, made at Berthoud in 1967.

Q. Mr. Taylor, were you able to find anything?

A. Not in my file, no, sir, not in this file.

Q. I placed in front of you, during the recess, two exhibits marked Defendant's Exhibits 2 and 3. Would you please review those exhibits and state whether you

can identify the plant shown on those pictures as the Berthoud plant of Western Alfalfa.

A. I can't say that its Berthoud, no. But if you say so—

Q. Do you recognize those plants?

A. It's one of the plants of Western.

Q. You are not sure which one it is?

A. No.

Q. Are those accurate representations of the plants from your recollection?

A. Best I can recall yes. You mean as far as drum and this type of thing.

Q. Yes.

A. Yes.

Q. The plume that we see in the picture is from the main dryer, is it not?

A. Yes, sir.

Q. Is that correct?

[33] MR. CAWELTI: I ask that those be admitted in evidence, Exhibits No. 2 and 3.

MR. FOSTER: I have no objection.

THE CHAIRMAN: They will be admitted.

MR. FOSTER: I have nothing further of Mr. Taylor.

MR. HEATON: Mr. Taylor, in reference to the letter you wrote which said there was some improvements in one of the plants in the 1967 visit, there was no intent on your reply that they were in compliance with the state law at that time?

A. I think that's the letter Mr. Bishard wrote.

MR. HEATON: Are you saying that Mr. Bishard should answer that question?

A. Yes. He wrote the letter.

MR. HEATON: When you made your visit on June 4, 1969 and made these observations, and you as a certified air pollution observer, these emissions did or did not exceed the state standards and the state air pollution control act?

A. They did exceed.

MR. KRILL: Am I correct in inferring that in your opinion the variation in the emissions from the various stacks at any one plant would vary appreciably with the season of the year, early in the year or June, July and [34] August? Would that opacity indicated by the Ringelmann standard change from month to month with the loading?

A. Yes, I think it could, yes.

MR. KRILL: Then is it possible that it might be within the statute at one time and be out another time?

A. Yes, sir, that could happen, yes.

MR. KRILL: Then there is a significant variation?

A. Oh, yeah.

MR. HEATON: You had been working with these people since 1967 and observed the alleged violation since that time. Am I correct?

A. Yes, sir.

MR. HEATON: Why was the decision reached on June 16 to serve the cease and desist order? Had you felt that conciliation phraseology on the part of the law had failed?

A. Not entirely. I think we have to operate within the framework that the Board of Health has established. They gave us at the most year and half, but since this is a seasonal operation, we had to wait until they were operating in order to determine, in order to comply with the rules and regulations established by the Board of Health. This is why we had to issue the order. We had to do this within the framework that we work in.

[35] MR. HEATON: Did they have work in process in those plants at the time?

A. I don't know. I haven't been back since the cease and desist order was issued.

THE CHAIRMAN: Thank you Mr. Taylor, that will be all.

MR. FOSTER: Call Mr. Bishard.

A. C. BISHARD,

first being duly sworn to state the truth, the whole truth and nothing but the truth, testified on his oath as follows:

DIRECT-EXAMINATION

BY MR. FOSTER:

Q. State your name and occupation.

A. A. C. Bishard, air pollution control engineer, State Health Department.

Q. How long have you been so employed?

A. Approximately two years.

Q. What is your formal education and training as air pollution engineer?

A. Colorado State University, degree in engineering, and training while with the Health Department, with the federal branch of the department.

Q. You have done outside studies pertaining to the profession, have you?

A. Yes.

[36] Q. Are you acquainted with the three plants belonging to the respondent company at Eaton, Windsor and the Berthoud plants?

A. Yes.

Q. How long have you been familiar with that operation?

A. Approximately a year and a half.

Q. You have made visits to the plants in 1968 and 1969 then, did you?

A. Yes.

Q. Were you with Mr. Taylor when he made any of his Ringelmann observations? Do you recall?

A. '68 I was. But I would have to search back through the file to find the specific dates, however.

Q. On any occasion in 1968, did you make readings at any of the respondent plants that exceeded the statu-

tory standards for opacity under the Ringelmann standards?

A. Yes. Concurrent with Mr. Taylor's.

Q. You did not make any in June of 1969, did you?

A. No, sir.

Q. What has been your contact with the plant representatives, and what has been the conference and conciliation procedure, so far as you are concerned? I just want an overall description, in a general way what your [37] contacts have been, and what the improvements have been following these contacts and so forth.

A. In 1968 I started working in the field with Mr. Taylor on the alfalfa dehy plants. I visited all three of the Western Alfalfa plants at Berthoud, Eaton and Windsor. At that time Berthoud was the worst of all three having two single pass drum and the opacity exceeded No. 2 Ringelmann fairly consistently. We did not make repeated visits every week or on every specific month, but made visits when we were in that area. And at times the whole plant appeared to be No. 4 Ringelmann. But we didn't make a specific note of the readings at this specific time because it would not be necessarily representative.

At the Windsor and Eaton plants, although they were somewhat better than Berthoud, still in excess of the state standards.

MR. CAWELTI: I would like to have the witness identify the time and whether or not these observations were made by him.

Q. Do your notes give the exact times and the places?

A. No.

Q. You are a qualified smoke reader, are you?

A. Yes.

Q. You are qualified with the Department or the [38] smoke school.

A. Yes, sir.

Q. Has the density of the emission from the plants improved appreciably from the time you first visited them?

A. In the case of Berthoud, very definitely, very noticeably.

The Windsor plant and the Eaton plant, in reference to the improvement, is more a thing of volume than opacity. When they bypass some 70 to 80 percent of the flow, recirculating this flow, there's only some 20 to 25 percent discharged into the atmosphere and therefore, there's a marked difference in volume, less going into the atmosphere of the contaminates.

Q. Mr. Bishard, do you have an opinion whether or not the amount of loading and kind of and the type of alfalfa that's being fed into the plant would cause a variation in the density of the emissions that's being noted? Do you have an opinion as to that?

A. Yes.

Q. Would you state your opinion in that connection.

A. The in-coming material of chopped alfalfa is mainly, the moisture content varies from 70 to 85 percent, and sometimes 90 percent water.

Now, if the material has been hailed or [39] damaged material, it's much harder to dry and with higher temperature, it results in more of a change affect on the chaff as they pass through the dryer.

Q. The charge affect then increases the density of the smoke emission. Right?

A. Yes, from the dryer.

Q. Would you have an opinion as to whether or not by proper plant operation and recycling that you spoke of, will be possible to bring the three plants into compliance with the law?

A. No, sir. It lowers the total emission. However, there is that 25 percent, approximately, that is discharged from the grinder cyclone that needs to be considered, or that specific aspect of the operation.

Now, this material could be passed into a control apparatus and controlled so that it is below the visible range or approximately 99 percent efficiency.

Q. There would be a way of eliminating all of the objectionable contaminates if those controls were to be applied?

A. Yes.

Q. What would those controls be if you were to recommend a control to this plant?

A. Speaking in reference to the grinder emission which is strictly a dust, there doesn't seem to be a [40] temperature or humidity problem at that point. A bag collector could be used. There are design problems and we have recommended to all companies that they seek competent professional engineering help on designing any type of control installation.

On the dryer collectors, a big portion is the operational matter and there are some changes that could be done to reduce the emission there.

On the dust from the pelletizer or cooler, here again we believe that a control apparatus could be applied which would control it to 99 percent efficiency or more.

MR. FOSTER: I believe that's all.

## CROSS-EXAMINATION

### BY MR. CAWELTI:

Q. When we were talking with Mr. Taylor, we referred to your letter in July of last year, July 12 last year, where you noted marked improvement in the Windsor and Eaton plants.

A. Correct.

Q. I think you said in your direct-examination right now you had not noticed too much change in the Windsor plant, or something like that. I'm little confused now.

A. You are thinking in terms of opacity. I'm thinking in terms of volume and that's the difference.

[41] Q. Then referring to the letter, you were saying there had been marked improvement in which?

A. When the air recycled from the grinder, the volume that is discharged to the atmosphere decreased from 70 to 80 percent opacity, although somewhat larger or higher in the discharge, that 20 percent being discharged to the atmosphere is little higher, but still the volume has decreased significantly.

Q. You are saying then, in other words, a marked improvement in the volume or the amount?

A. I'm speaking in reference to the grinder cyclone, right.

Q. But is this correct that there has been marked improvement in the amount of the emissions, but not much change in the appearance of it?

A. When we are making Ringelmann readings, we read according to a scale.

Q. Ringelmann doesn't have a darn thing to do with the amount of emissions.

A. We do not measure amount as to grain loading.

Q. Or the amount in any other type of quantative way. Isn't that true?

A. We have made a number of emission inventory on all dehy plants as well as all industries in the state of Colorado, and we do take into account the amount.

[42] Q. Let's take an example which just occurred to me now. While the amount of the emissions from Mr. Foster's cigar certainly is insignificant, they could be in violation of the Ringelmann test. Am I correct?

A. Leaving out Mr. Foster's cigar, there is a definite correlation between the amount and the atmospheric load, and that is what we are mainly concerned with.

Q. Which? How it looks or how much is polluting the air?

A. Both.

Q. Which mainly?

A. We take it in steps. First, visual.

Q. That's the main one.

A. Right.

Q. Your concern is less with the amount of the pollution, but if it looks good they get by no matter how much is involved.

A. This is largely a grey area, I will admit. But that is not the major concern, no.

Q. So that you are telling us here that the significant marked improvement was made in the volume of the emissions from these plants, but that the looks of them weren't too good?

A. I would say generally they did look better. There is little more consistency. Didn't see as bad fluctuations [43] in the emissions.

Up to that time, and I forgot the date of the letter, but the Berthoud plant had not been remodeled and it did not show the same improvement.

Q. And since then it has been remodeled in the same way the other two plants were?

A. Yes. But to what degree, I'm not certain. But it appears that way, yes.

Q. Same marked improvement occurred there as the other two?

A. Percentagewise, much higher.

Q. I believe you stated that you had studied literature of air pollution, in qualifying yourself for testimony here.

A. That's correct.

Q. You are aware that there is considerable amount of literature concerning air pollution that citicizes the use of the Ringelmann test or there is quite a bit of criticism in air pollution literature concerned with the use of Ringelmann test, is there not?

A. Not the literature I read.

Q. You have read Mark's engineering handbook, have you not?

A. Not entirely.

Q. That's a standard work or book amongst the [44] engineers?

A. It may be.

Q. It is recognized by you and other engineers as a standard handbook?

A. We use Stein's also.

Q. And use Mark's.

A. I don't have a copy of Mark's, no.

Q. But you are familiar with it?

A. Yes.

Q. Are you familiar with his statement in the 7th edition "while Ringelmann chart is frequently used to evaluate stack emissions, it is crude and inaccurate method."

A. I've heard the statement, yes.

Q. You have been involved in air pollution activities long enough to have heard that statement haven't you?

A. That's correct.

Q. And you have been to the smoke school a number of times, haven't you?

A. Yes.

Q. Does that mean you took a number of tests to pass the course?

A. We are required to pass at least once every six months.

Q. The technique is to hand out papers there and [45] you put down your estimate of what the reading is, and then the correct reading are read off. Is that not right?

A. Pass out forms, two sets of columns, one for Ringelmann and one opacity. We are then asked to record our judgment of the Ringelmann readings versus that of the electronic eye that is placed in the stack of smoke generator, recordings from the meter is recorded on a master sheet. And everyone taking the test is record their reading at a distance and not able to see the meter, record it on their separate sheets. At the end of this run, it's recorded and corrected.

Q. The readings are read back to you?

A. The operator of the smoke generator reads back what the meter reads and they are entered along your entries.

Q. You do that yourself?

A. Yes. Anything in excess of a ten, which is 5 percent deviation, you are to record and add up and there is a percentile of deviation that you are allowed. I think you are allowed one reading over 10 percent, and maximum of six readings over 5 percent.

Q. Then you put down the total of how many hits and misses you had.

A. That's correct.

Q. You write this in a little blank at the bottom [46] of the sheet.

A. Right.

Q. And looking at this blank you can tell whether you passed or didn't.

A. If it's correct.

Q. There is no judgment factor, either you passed or didn't.

A. Oh, yes, in the calculations there is.

Q. I mean in grading there is no judgment involved, either you hit it or missed.

A. The forms are checked by the operator after the readings are taken and before any certification takes place.

Q. But he just adds it up and checks your arithmetic.

A. He checks everything, all the entries.

Q. But there is no judgment factor involved, either you have a passing grade or you don't have.

A. That's correct. But there is calculations and the standard deviations.

Q. If you pass and if you are sent there by the government you can hand in your paper and they certify you. Right?

A. That is correct.

Q. And if you pass and you were not sent by [47] the government, there is no place to hand the papers in. Is there?

A. If you passed and weren't sent by the government, you are a guest.

Q. And you don't get any official recognition.

A. That's right. You are not intended to be certified.

Q. Is that so as to avoid conflict of expert testimony, as you understand it?

A. That depends on your interpretation, yes.

Q. But you pass it one way or another, whether the government certifies you or not.

A. Yes.

MR. CAWELTI: That's all.

BY MR. SETTER:

Q. If you can rate the Ringelmann test against a meter and electric eye, why not use the electric eye and the meter for taking these readings?

A. The electric eye is confined to the stack. And it's very expensive. There are very few used on stacks within the metropolitan area.

Q. Who owns one?

A. Public Service Co. has one that I know of, and possibly two.

Q. This is the real standard for certifying Ringlemann observers then.

[48] A. Yes.

BY MR. HEATON:

Q. Mr. Bishard, I want to talk little bit about the bypass on the grinder. Is the by pass, the amount of the bypass variable and controllable by the operator personally?

A. I'm not sure whether they all are. Some of them are. They do have regulations where they can vary the air. Most of the units are, the bypass it tapped in below

the discharge from the collector and recirculated in this manner from the discharge to the grinder. It is recycled through the grinder. Recently there's a new edition, and that portion has been discharged through the atmosphere, 20, 25 percent is discharged into the primary collector from the dryer. And if there is any dust it goes up with the dryer emission. It's no longer a separate entity.

Q. You can't differentiate any longer.

A. Correct.

Q. Before this change was made though, you said there was a reduction in the amount of pollutants that came out due to the fact you bypass a high percentage.

A. Yes.

Q. Was there any change in the opacity of the pollutants that were discharged?

A. I don't have that recorded but yes, there is an increase in opacity.

[49] Q. It's more opaque.

A. Yes, right.

MR. FOSTER: We have nothing further.

THE CHAIRMAN: Thank you, you may step down.

MR. FOSTER: We have no further witnesses.

MR. CAWELTI: At this time I would like to move to dismiss the case of the Department.

Without getting into any discussion about whether the burden of proof on them is beyond a reasonable doubt or mere preponderence of evidence, I don't think they have shown to this Board that a violation has occurred.

We have seen the picture and heard the talk about the marked improvement. From a bare violation we had a marked improvement. We have presented to the Board the pictures of what actually was occurring there.

The testimony has shown that the situation fluctuates, even within a range of 10 minutes, and particularly with a range of season.

I don't think this Department has shown that these people are in violation. Western Alfalfa has made remarkable progress, they have been cooperative and they have shown inovations in improving the situation that existed in 1967. I think something further must be shown that this, before we are required to proceed and [50] defend against what we can't even see as threshold showing of a violation of these plants situated in and around Greeley.

I request the Board seriously consider our motion to dismiss, adjourn and rule upon it.

MR. HEATON: Is it proper to question the legal attorney on his motion or not?

MR. CAWELTI: I have no objection.

MR. FOSTER: The Board has a right to have anything clarified.

MR. HEATON: Mr. Cawelti, in your motion to dismiss, are you denying there was a violation on June 4, 1969?

MR. CAWELTI: We were not actually there on June 4 but we do have one picture of what was there on June 4 and all of our information and things that we have heard so far is that we made marked or remarkable improvement there. However, on the basis of what has been presented here, we don't think that he has shown a foundation and as I stated, I believe there must be something further shown than this before we are required to proceed with our case.

MR. FOSTER: You have the motion to dismiss. Now the Board will have to consider it at this point. I feel that we made a prima facie showing that there was a violation.

[50] (WHEREUPON, there was a short recess after which the following further proceedings were had:)

THE CHAIRMAN: We will declare the meeting in order.

The decision of the Board is to deny the motion for dismissal.

The hearing will proceed.

MR. CAWELTI: Mr. Syverson.

CARROL SYVERSON,

first being duly sworn to state the truth, the whole truth and nothing but the truth, testified on his oath as follows:

DIRECT EXAMINATION

BY MR. CAWELTI:

Q. Would you state your name, please.

A. Carrol Syverson.

Q. What is your address?

A. I reside at 8515 Linden Rd., Leewood, Kansas.

Q. What is your occupation?

A. I'm executive vice president of Western Alfalfa Corporation.

Q. How long have you held that position?

A. Since January 1, 1968.

Q. What was your job prior to January 1, 1968?

A. From the period August 1959 until that date, performing the same functions but as general manager of [52] the alfalfa division of the Archer-Daniel Midland Co.

Q. Do I understand that the alfalfa division of Archer-Daniel Midland Co. is substantially identical to what now exists as Western Alfalfa?

A. Yes, correct. Western Alfalfa Corporation changed hands, bought by another corporation on the date of January 1, 1968.

Q. When did the alfalfa division of Archer-Daniel Midland Co. come into existence?

A. Alfalfa division, by their acquisition of their enterprise in the year 1952.

Q. From whom?

A. It was acquired from W. J. Small Co., a corporation owned by Mr. W. J. Small.

Q. How large is Western Alfalfa in terms of number of plants?

A. We operate twenty-five primary producing locations similar to the one at Berthoud and so on.

Q. Where are these twenty-five plants located?

A. In four states, Colorado, Nebraska, Kansas and in Missouri.

Q. How does Western Alfalfa Corporation rank in terms of overall size with other dehydrating companies?

A. I'm not sure how without having the precise knowledge of our competitors, but we are considered to be [53] one of the three majors in the industry and I presume, quite certain that in terms of production, marketing, that we are leaders in both categories.

Q. What is your duty as executive vice president? What does it consist of?

A. Those that of, normally, chief executive officer.

Q. How many plants do you have in Colorado?

A. We have four.

Q. In addition to the three discussed here today, where is your fourth plant?

A. We have one located at Ordway, in the southeast part of the state.

Q. What is your annual payroll in Colorado, approximately?

A. I suppose approximately $250,000.

Q. Western Alfalfa Corporation is concerned only with the marketing, growing and processing of dehydrated alfalfa.

A. That is the nature of our enterprise and our sole activity.

Q. With the matter of or with respect to your three plants in northern Colorado, what would you consider to be the market areas for your product up there?

A. It's almost exclusively in the state here, in [54] the state of Colorado, in this part of the state and then extending to, much lesser into Wyoming.

Q For what is your product used?

A. In this area, generally almost exclusively for cattle feeding, and again much lesser extent for turkey feed.

Q. In connection with your operations in northern Colorado, does Western Alfalfa own the land on which the alfalfa is grown?

A. In no case, except some places where it's land about our plant sites, where alfalfa is planted.

Q. How do you acquire your product to dehydrate?

A. It's bought from the farmers annually. It's usually under agreements to take their whole output from a given acreage for the whole season. Here in Colorado there is some variations to that because of the nature of the agriculture, may get only one other crop or maybe two as the farmer may find to suit his interest to sell to us, you see.

Q. Approximately how many acres are served by your three plants?

A. Here in this part of Colorado, the land is normally considered by us to be thought of in terms of quarter section. We have no access to survey information. But we believe that's about 35 acres out of every quarter [55] section is devoted to alfalfa. And in our instance or in our case we would be using annual output from approximately 5,000 of these acres in these two counties.

Q. And approximately from how many farmers do you purchase your product from?

A. Just extrapolating figures here, just spin that through my head, be about 135 to 140, in that range.

Q. What, at the present time, is the economic situation with respect to the marketing and dehydrating of alfalfa?

A. At this time we are still going through a change in our industry, the situation is somewhat comparable to what you find generally in agriculture relating to grain farming, and so on, much depressed, which has been going on for more than two years. And during this two-year period, we suffered the lowest prices for our products in all the industry at this time. We are not at our low ebb, but I suppose our products here are now selling at approximately $4 under what we normally be expected to have in the last five-year averages or so.

Q. You stated a moment ago that you purchased your product from approximately 135 to 140 farmers in the area.

Do you have an estimate of the dollar amount which you pay these farmers, cumulative, in northern Colorado?

[56] A. I suppose it would be around half million dollars.

Q. You as vice president of Western Alfalfa, you received correspondence from the Colorado Department of Public Health going back to the fall of 1967. Is that correct?

A. Yes.

First communication you received from this department was, as I recall, in October 1967 and it was addressed to me then as the manager of the alfalfa division of Archer-Daniels Midland Co.

Q. In 1968 during your production season, did you have occasion to engage an engineer to look at your plants up here?

A. Yes. At that time in 1968 I had personally sought out counsel and service of a person named Mr. Richard Ronning.

Q. Who is Richard Ronning?

A. Richard Ronning is an engineer residing in Overland Park, Kansas who is a qualified registered engineer in the state of Minnesota, I believe, at least that's what he states. He is a person with approximately eight or

nine years of experience in great many different capacities with the alfalfa dehydrating industry in this county.

Q. And as executive vice president of one of [57] big-three, I believe you testified a moment ago, do you have personal knowledge of Richard Ronning's knowledge in the dehydration industries?

A. Yes. He performed services on our behalf extensively prior to this.

Q. As a result of his visit to your northern Colorado plants, did he write you a report?

A. Yes. As is customary he gave me a written report. It's a letter.

Q. Will you summarize briefly what his findings were.

A. Well, prior to that he sought out information about the Ringlemann test which admittedly was new to him. And upon studying this system, making observations, he made readings and at that time he reported, upon returning, reported that in his observations he held that under the code here in Colorado that there would be no violation.

Q. He made that report.

A. Yes, he did. I don't recall what they were specifically. The letter, I think could be made part of the record here.

Q. In order to refresh your recollection, perhaps you would like to refer to the letter.

MR. FOSTER: I would object to any testimony by this witness, testifying on someone else's report. It [58] is hearsay, incompetent and irrelevant.

MR. CAWELTI: This is an administrative board hearing and not in court of law and as such, it is not bound by the strict rules of evidence. I believe that the Board can receive it and weigh the evidence herein. Though it is hearsay, I would submit it to the Board for their consideration, give it whatever weight the Board thinks is pertinent.

MR. SETTER: This is a report that Western Alfalfa paid for services to evaluate your plant?

A. Yes. At that time and that date, to find out more about the whole situation.

MR. FOSTER: I would agree to its admission going only so far as to establish that a man made a report, and engineer whom we do not know whether he is qualified or unqualified to make Ringelmann examinations in his opinion.

(WHEREUPON, a document was marked Defendant's Exhibit No. 4 attached hereto.)

Q. I hand you what has been marked Defendant's Exhibit No. 4. Would you identify that, please.

A. Yes. This is the same one we have been discussing, date is October 16 and addressed to myself by Mr. Richard Ronning who calls himself Ronning Engineering Company, Inc., Overland Park, Kansas.

MR. CAWELTI: We will offer it into evidence [59] at this time if there is no objection.

MR. FOSTER: No objection.

Q. Does he report the specific Ringlemann readings therein?

A. Yes. He reports to me readings made at the Windsor plant October 9 and 10, twelve sightings under the Ringlemann smoke chart and his statement in this connection is that throughout the periods of normal operation, all tests showed smoke density and dust density to be less than a No. 1 on the Ringelmann chart.

Q. What plant was that in?

A. That was in Windsor.

Q. What did he say with respect to Eaton?

A. The test period was 5:40 to 6:40 p.m. on October 9, '68, that four sightings were made with the Ringelmann smoke chart and none was in excess of No. 1.

Q. What did he say with respect to Berthoud?

A. Berthoud test, observations were made by him on October 10 over a period from 11:30 a.m. to 1 p.m. and his statement is that six sightings were made with the Ringlemann smoke chart and all were less than No. 2 and 3 sightings were less than No. 1.

Q. Lists higher reading with respect to the Berthoud plant.

A. That is correctt.

[60] Q. Is there some explanation for that?

A. As we heard here earlier and which is correct, at this time the Bertthoud plant had not been brought under the program off change as we had up to this time accomplished at Eatorn, for example.

Q. Did he also make some statements with respect to where Western Alfalffa stood nation-wide in terms of its cleanliness?

MR. FOSTER: Object to that as being immaterial, how it stands nation-wide.

THE CHAIRMAN: Sustained.

Q. Have you also had occasion to engage another engineering firm quite recently with respect to analysis of your operations in northern Colorado?

A. Yes. Most recently the engagement of the Stearns-Roger people here in Denver.

Q. When were thee changes made at your Berthoud plant?

A. Prior to the season that commenced with May of 1969, in other wordss the work was accomplished over this past winter.

Q. I believe it was stated your first contact with the Department occurred in the fall of 1967, and you also heard, have you not, the letter indicating as far as your Windsor and Eaton plants were concerned that you had made [61] marked progress by the summer of 1968.

Now after you made the changes at Berthoud, did you hear anything further from the air pollution control prior to your cease and dessist order?

A. None came to my attention whatsoever.

Q. Did you have great deal of familiarity with the three plants in northern Colorado?

A. Yes. I have as much familiarity with these three plants as with any of the installations and facilities in our whole system. My visits to these places, I suppose would number at least six annually. My last visit to them was, for example, July 12 or 13 which I recall vividly because it was my birthday.

Q. So that you visited these plants say six or seven times a year for the last three or four years. Is that correct?

A. For the last ten years.

Q. Are you aware of the improvement that you have made at your three plants in northern Colorado?

A. I am aware because all of these improvements of course, must be cleared through me and then the expenditures authorized, and even the engineering aspects would have to come under my close surveillance.

Q. Have you personally noticed marked difference in the amount of emissions coming from your three plants here?

[62] A. Yes, indeed, to the extent already discussed here today.

Q. I realize that you have not been to the smoke school and so I certainly have no intention to qualify you as a smoke expert here.

But how would you personally characterize the quality of the emissions that is coming from your three plants in northern Colorado?

A. One can only do it, I suppose, by comparison, since I travel extensively among our own plants and among the entire industry, and it is my observation that these would be classified in my mind to be clean. I mean, there would be no problem about pollution as such. That's just in general terms. I'd hesitate to define it precisely.

MR. CAWELTI: I have no further questions of this witness.

MR. FOSTER: I don't have any questions.

BY MR. HEATON:

Q. Mr. Syverson, are you familiar with the state air pollution control act?

A. Just generally. I've read most of it through. As I say, generally to the extent, I know what the requirements are.

Q. Do you feel qualified to make a statement that you do or do not conform with the emission standards [63] in the state air pollution control act?

A. Well, it is my opinion we do conform.

Q. What is the basis of that opinion?

A. On the basis of the people who have separately taken the Ringelmann readings and furthermore, on the basis of the reading and observations taken by the engineers who were engaged, namely the firm of Stearns-Roger who precisely stated that in all three points of discussions here pertaining to the sources of emission, that there was no violation and I accept their report to be quite valid. At least personally this is the way I took it.

Q. Your statement was that you thought your plants were among the cleanest in the industry. That does not imply they conform to the standards, does it?

A. I'm not a judge of that, no. Like I said, I couldn't be precise.

Q. Specifically, when was Stearns-Roger hired?

A. It was subsequent to the cease and desist order which I suppose been the latter part of June or early July. I don't have the date at hand.

BY MR. CHENAULT:

Q. Mr. Syverson, have you experienced similar air pollution problems in some of your other facilities in Nebraska, Missouri and Kansas?

[64] A. Oh, yes, indeed. This is inherent, or typical of the alfalfa dehydrating business, unless one does extensive work to cope with the pollution problem, you will have it.

Q. These particular plants where you experienced this problem, your firm or engineering firm installed abatement systems that would control the problem?

A. Yes, indeed.

Q. Would you say that the problem in which you are confronted with, these facilities here in the state of Colorado, are similar to those problems in where you have installed abatement systems?

A. Yes, the problems, plant structure, the layout and so on is similar to the plant we have here. The problems would be quite alike.

Q. And these systems that were installed were as the result of a violation or ordinance or law within those particular states?

A. No. I'm happy to answer your question this way, that there is more in our mind than the abatement of this or to solve the problems of air pollution. There is the economic consideration which is of great concern to us, because the emission into the atmosphere, quantities of this material is emission or the loss of money, really. So even before having received this communication originally from [65] this Board in 1967, in the winter of 1966 or that is prior to January 1, 1967 we had in our engineering group conversations which evolved a plan to install this prototype system at a location in Odessa, Nebraska. This prototype was then put into operation at the site in the 1967 season and it was perfected there and this perfected system was then installed here in the plants in northern Colorado and improved upon when brought here to the extent that we brought them up in our minds where they would pass the Colorado requirements.

BY MR. SETTER:

Q. What is the daily capacity of these plants? Are they all about the same in tonnage?

A. In Colorado?

Q. Yes.

A. The capacity of these, yes. They are designed to be quite alike. But there's little variations which is unexplainable. But they are quite alike.

Q. What sort of average production is it?

A. These units are rated in terms of their capability, rate of so many pounds of water per hour. These have an optimum of approximately 22,000 pounds per hour.

Q. Ten tons per hour?

A. Twenty-two thousands pounds of water evaporated per hour.

Q. And what you are doing is dehydrating.

[66] A. Right.

Q. Then the moisture content of the alfalfa is quite a variable thing. Is this correct?

A. Yes. I think one of the gentlemen said here that it varies from 75 to 90. Ninety exceeds what would be expected to be the limit. Maybe 86 would be the top side.

BY MR. HEATON:

Q. If I visited anyone of your plants in the four-state area that you mentioned, would I find the equipment to be exactly the same?

A. Not exactly. We have various equipment. And some we have, are single pass drum which admittedly are not good and efficient as you find in northern Colorado. We have differences in the hammer mills, for example, because they are made by different suppliers or fabricators. And you find different types of pelleting equipment for example and different designs of flow lines.

Q. Would I find the control procedures, the operating procedures different than any of these plants?

A. This is very critical here. You would find control of the fueling systems and the systems that regulate the volume of air through the drying process, which are under very strict control because this is, economically, terribly important.

[67] Q. These are corporate standards and not plant standards.

A. Yes, this is a program.

MR. FOSTER: Some of the previous testimony given on behalf of the Department mentioned taking the effluent now being discharged, putting it through water. Would not that be additional control that would be feasible to eliminate practically all of the emissions from the plant?

A. I presume that it would be possible, yes, which is a method of scrubbing, I think it's preferred to. It would be, in our opinion, beyond the limits of economic feasibility for this type of installation.

Q. Costwise?

A. Capital cost, yes, and the engineering, all things considered plus the operational cost. So then you immediately create another pollution problem.

MR. CHENAULT: Any reason why a bag type collector could not be used as a collection media as opposed to a scrubber system?

A. For a good reason, and that is we have in the past, the industry, our company we used this extensively with extreme difficulty which the main reason is loss by fire. Fire is ever present here, an ever present condition. Bag type collector means not only the loss of that unit, but perhaps your buildings with it. Very great hazard for fire.

MR. CHENAULT: If you had a bag house after [68] the cyclone, would you still be confronted with this? It seems to me your cyclone is your source.

A. We are talking about a closed system here, really. You got circulating systems of air here going through

and fire can be carried from one end to the other, through the whole works. One would have to look at the flow chart to be able to see this.

THE CHAIRMAN: If there are no further questions of this witness, you may step down.

CARMEL LAVINCI,

first being duly sworn to state the truth, the whole truth and nothing but the truth testified on his oath as follows:

DIRECT-EXAMINATION

BY MR. BLACKWOOD:

Q. State your name, please.

A. Carmel Lavinci, 5501 W. 97th, Overland Park, Kansas.

Q. What is your occupation?

A. Vice president, Western Alfalfa, Kansas City, Missouri.

Q. How long have you held that position?

A. Since February 11, 1969.

Q What was your job prior to that time?

A. General manager, Central Storage Elevator.

Q. What does your duty consist of at the present [69] time?

A. Primarily to assist in the discharge of corporate management duties with special emphasis on purchasing, labor relations, on air pollution problems, general advice on production problems and engineering problems.

(WHEREUPON, a document was marked Defendant's Exhibit No. 5.)

Q. I will show you what has been marked Defendant's Exhibit No. 5. Could you identify that, please.

A. Yes. This is a flow chart that was prepared by the Ronning Engineering Co. at my request, showing essen-

tially a typical installation of Western Alfalfa Corporation dehydrating alfalfa plant in northern Colorado.

MR. BLACKWOOD: I would like to offer this diagram at this time.

MR. FOSTER: No objection.

Q. We have heard a lot of talk today in the two hearings about what happens in a dehydrating plant or the dehydration of alfalfa, the facilities. I would like for you to go through the steps in the production of alfalfa dehydrating product.

A. Essentially as pointed out previously, we are engaged in physically removing moisture out of what we call alfalfa chops. We have the drug dryer here which is [70] simply a cylinder that rotates, which happens to be a 10-foot diameter drum, 40 feet long and rotates from nine to 10 revolutions per minute. It burns natural gas. We introduce the wet alfalfa chops with high moisture content in this point, the dryer, and as the chops move through the dryer under the impulse of air from a fan installed at the end of the drum, it is dried through the course of its movements, it moves pneumatically to this primary cyclone where the steam moisture is vented.

Q. The primary cyclone is the No. 1 source of emission that is cited in the cease and desist order.

A. Right here. Of course, the cyclone is, as you gentlemen know, is designed for swirling motion and the gaseous material is emitted to the atmosphere whereas the solid matter is dropped through the cyclone to the bottom and discharged to the bottom.

At the bottom of this we have what is called a trash removal door for foreign matters which is cleaned out. At that point we have another pneumatic pickup and we convey the material to the secondary cyclone which is here.

Q. This is the No. 2 source of the emissions, which is cited in the cease and desist order. Is that correct?

A. Yes. Now this hammer mill is the swinging type and the function is to reduce the dehydrated alfalfa chops

to a size consistent with proper pelleting. From the hammer [71] mill we convey now the ground alfalfa to the meal cyclone from whence it goes to the meal auger or the screw, thence to the meal bin and the pellet mill. The pellet machine itself is a machine which is used to transform the dehydrated meal into compact dense form, into a pellet form.

Q. And this is the third source of emission for which we have been cited.

A. Yes. But I haven't got to that yet. From the pellet mill by means of an auger and pellet elevator, then we move the pellets to the cooler. And the function of the pellet cooler is to cool it down to 10, 15 degrees above the ambient temperature to remove the heat away from the pellets for preparatory to storage, shipment of the pellets to other points because otherwise, the pellets would have too much moisture for proper safe keeping. We introduce a stream of air through the pellet cooler and the function of the air is to both dry and reduce the temperature of the pellets and from thence we exhaust the gases or the air through this cooler cyclone with the fines dropping down to the meal bin, for recycling again.

Q. This diagram fairly represents the condition of your three plants in northern Colorado at the present time?

A. Diagram, yes, sir.

Q. Are all three of your plants in northern [72] Colorado basically equal as far as the mechanical operations are concerned?

A. Yes.

Q. Now going to June of 1967, does the diagram as it is shown here fairly represent how the plants were operating at that time?

A. No, it doesn't. First of all, Mr. Blackwood, the dryer is a three-pass dryer and at that time both Berthoud and Windsor, we had single pass drums in operation

there. Also, this red line here which I hope this Board can see, the red line from the meal cyclone down to the top of the hammer mill and also down into the entrance way to the fan, at the end of the drum dryer, were not in existence at that particular time.

Q. Do I understand you to say that the vent at the top of the meal cyclone was open?

A. Yes.

Q. You are aware, are you not that at the hearing this morning, there was source of emission which Colorado Alfalfa admitted was in violation?

A. Yes.

Q. Are you able to identify on this diagram that source of emission?

A. The meal cyclone, here.

Q. Which has been closed up since June of 1967.

[73] A. Yes, sir.

Q. Would you briefly tell us the distinction or the difference between a single-pass and three-pass drum.

A. Within this cylinder we installed two concentric cylinders and the inner most cylinder is about the diameter of this furnace or the new furnace as redesigned, by the way, and then with an intermediate cylinder. They rotate around the same axis, of course. And we also completely redesigned and rebuilt the furnace. The furnace was made roughly twice as long and about 2.5 times, I believe, larger in volume. Also, we increased the size of the fan to induce more air through the dryer, at the dryer end. Now the reason for this change is in increasing the capacity of the drum, you therefore need a larger, more adaptable heat system in the furnace, and also a larger volume of air to physically move the larger volume of chops that go through the drum which are being dried.

Q. What affect, if any, would those changes have on the emissions of the primary cyclone?

A. We think it's quite substantial, the reduction effected by the changes as stated.

Q. Do you have an estimate as to the approximate cost of the changes, the effects of the change that you have made to your three plants here in northern Colorado?

[74] A. I would say about $60,000.

MR. CHENAULT: Could you point out on the diagram where the fire hazards are providing a dust collecting media is installed?

A. I must say that fire hazards are any place in an alfalfa plant, not only in this dehydrating system, but also the storage elevator. I know because I fought fires all my life. One of the primary source is right from the hammer mill and anything beyond the hammer mill is a primary fire hazard. Any point in this line here you could have fire. You could have fire any place in here if the trash removing is not working properly.

Q. I believe his question referred to Mr. Syverson's discussion on the possibility of bag type collector, talking about placing a bag type collector.

A. I'm sorry, I frankly could not hear. You will have to refresh me on that.

Q. Is it possible to your knowledge to have a bag type collector over your primary cyclone?

A. A bag type collector is not compatible with moisture. It's just not used in the business to trap dust with moisture. It is not compatible.

MR. BLACKWOOD: That's all that I have of him.

MR. CAWELTI: I would like to have this [75] marked as an exhibit.

(WHEREUPON, a document was marked Defendant's Exhibit No. 6 attached hereto.)

MR. CAWELTI: This exhibit, marked Defendant's Exhibit No. 6 is a letter from Mayor Wayne Miller of Windsor. I am not going to read the whole thing but

he identifies himself, states his connection with the city and the type of work he's been doing, and incidentally he is a public health official. He states "It has been our observation that they have always been very interested in improving the plant as new developments occur. This includes matters concerning air pollution. Frankly, as a casual observer who passes the operation at least two or three times daily during the course of my work, all I can see is white steam, and this dissipates quickly."

I just want to offer this for what is is worth.

We might handle this next matter by stipulation. And I would like to get everything before the quorum of this Board so that we won't have to return.

I intend to call Mr. Weimer who is the engineer, project engineer for Stearns-Roger who had the responsibility for the study made by them in July of this year, after the cease and desist order was received, and very soon after Stearns-Roger people had gone out to look at [76] the plants. He made a particulate study of the emissions from this plant and he made it in accordance with the ASME standards for making grain loadings. And of course, we would expect in his testimony to describe in detail how the method of testing conformed with the ASME standards, and announce the results of that particulate study, and the results of that particulate study. I don't have the exact figures here, but in summary it's less than the .40 pounds per 1,000 pounds of emission gases as set up in the statute, being under the limit of violation.

MR. HEATON: Is this technical report to be submitted?

MR. CAWELTI: No, no.

MR. FOSTER: On behalf of the Department, I will stipulate that if this gentleman were to testify, he would testify essentially as counsel has stated.

However, I would object to the testimony as not being competent in this hearing, or relevant and furthermore, the law did not make any provision for grain loading

or any provision whereby the respondent could at his own expense set forth— If he could show himself home-free on grain loading why he would not be in violation of the Ringelmann standards. That's the only legal question that there is with reference to this. I do not feel that it is competent or pertinent to even consider grain loading in this at all.

[77] Now, if the Board sees fit to admit that stipulation on that basis, on the basis that it is competent evidence, the Board will have to receive it and consider it. If it's the Board's opinion that it should not consider that evidence, then they will have to consider only the evidence that has been offered in reference to the Ringelmann standards.

THE CHAIRMAN: I would have to say at this point that grain loading is not at issue here, and without question is not relevant to the testimony presented.

MR. CAWELTI: Mr. Chairman, I will be brief. I think we have to face fairly this question of whether grain loading is going to be an appropriate test of this type of operation. We think it is. I think the Board is going to have to ask guidance of its staff, as to whether grain loading is or will be a defense.

MR. FOSTER: It will be if it goes under the July—

THE CHAIRMAN: Gentlemen, I think we should either close the hearing now or reconvene later.

Mr. CAWELTI: I would suggest, Mr. Chairman, in view of the fact that the question is pending in the other case, frankly, I don't know that we have further testimony to be given. But I think we are pretty well finished with our testimony. But I don't see any reason why, so [78] far as our case is concerned, the matter shouldn't be continued until the next meeting.

THE CHAIRMAN: All right, we will adjourn this meeting then.

(WHEREUPON, the proceedings were adjourned.)

[Certificate Omitted in Printing]

BEFORE THE AIR POLLUTION VARIANCE BOARD
STATE OF COLORADO

In the Matter of:

WESTERN ALFALFA,
(Continued hearing from September 11, 1969.)

TRANSCRIPT OF PROCEEDINGS

The above-entitled matter came on for hearing, on Thursday, October 16, 1969 at approximately the hour of 1:30 o'clock P.M., in the Conference Room 412, Colorado Department of Health Building, City and County of Denver; this matter having been recessed, and now proceeds.

APPEARANCES:

MR. CLAIR H. IVERSON, Chairman
MR. E. MCDONALD CHENAULT
MR. GEORGE SETTER
DR. ARTHUR M. KRILL
MR. THOMAS R. HEATON

On behalf of the Board:
JAMES KREUTZ, Esq.

On behalf of the Colorado State Board:
DAVE FOSTER, Esq.

On behalf of the Applicant, Western Alfalfa:
DONALD CAWELTI, Esq.

PROCEEDINGS

MR. CLAIR IVERSON: I declare the Variance Board hearing on Western Alfalfa, which began on September 11, 1969 and adjourned that same day to be continued at this time.

The members of the Board present, who were present at the previous meeting, are Mr. Chenault, Mr. Setter, Dr. Krill, Mr. Heaton and myself, Clair Iverson.

At this point we have Mr. Dave Foster representing the State Board of Health and Mr. Jim Kreutz representing the Board in legal matters, and we also have present, Dr. Gibbons, Dr. Lodge and Dr. Dwire, who are present to listen to the continuance of this case, but will not vote on the decision unless they have completely reviewed the transcript of the previous session.

MR. FOSTER: Could I make an amendment to your last remark, unless and until.

CHAIRMAN IVERSON: Shall we proceed from here.

MR. DONALD CAWELTI: I might point out to the Board, that since the last hearing, Mr. Foster and Mr. Kreutz have been kind enough to spend sometime with me and discuss what yet is to be done in the case.

On behalf of the applicant, of course, it is apparent [3] that I have nothing further to offer in the way of evidence. At the conclusion of the hearing last time, we had admitted by stipulation, and if you will recall, we were running quite short of time, and so as a convenience to all of us we admitted by stipulations a tender of proof, particulate emission tests being conducted with respect to the emission sources that had been cited and those tests were made in, I believe, in mid August, and that the tests revealed that the particulate emissions were less than the newly established minimums under the amendment to the Air Pollution Act effective July 1 of this year.

Now, we met since then and I, correct me if I am wrong, either Dave or Jim, I believe we stipulated that the engineering report itself could be received into evidence. I have it here and will tender it if the Board feels that it would be of some assistance. Beyond that, the only statement that I care to make, is I think I would point out what the obvious is to the Board, it certainly is to ourselves. I think we are all in somewhat of a dis-

position in this hearing in this matter, because of the fact that during the pendency of the resolution of this matter, the law has changed and this is a difficult and awkward situation for ourselves and I am sure the Board as well. Certainly the admission of a particulate standards as [4] far as the cease and desist order itself is concerned, is irrelevant. The law wasn't in effect at the time the cease and desist order was issued. I think we have to take a realistic look at this. However, not a great deal is to be obtained by continuance of the cease and desist order at this time, because of the change that has been made in the law and I also recognize the difficulty of the position of the staff as I refer to them. I envision perhaps, in that due to the issuance of the cease and desist order, the pendency of the hearing here, they have not had the opportunity to work with the respondent, Western Alfalfa in the conduct of the test that yielded the particulate results.

I know Western Alfalfa would have perferred that this test be done in conjunction with or under the supervision of and in cooperation of how ever you want to put the division of the air pollution control. I am sure there is someway that this can all be worked out to accomplish what we all want to do and that is bring these plants as nearly as economically possible to compliance.

I don't know if this is up to me to bring this up, but I know Mr. Kreutz and Mr. Foster and myself did discuss some means by which this matter could be handled and resolved [5] and yet we would all profit by the hearing having been held and work towards getting the situation improved to the extent we can. I don't know really. Is there anything else I should add Dave?

MR. DAVE FOSTER: I might ask the question, would the respondent be agreeable to leaving the matter in the hands of the Variance Board with a view of making periodic reports when the season starts up again as to what the situation is? Reports both from the company

and from the division as to what their findings are and what test, if any, additional tests are made and what Rinkleman readings are made and so forth. In other words, keep jurisdiction of the case rather than to go in and then have to come back with another cease and desist possibly and then going through another variance board hearing, or would the respondent prefer to let the board make that decision as what should be done with reference to the case?

MR. CAWELTI: Well, the problem with that approach, it seems to me, the cease and desist order which has now been issued relates to something that ocurred in June 18 or 16 of this year, has sort of become dated. And to continue the Board's jurisdiction on the [6] basis of that cease and desist order, it would seem to me to involve some problems. Western Alfalfa certain expects to work with the staff division, and with regard to its continued operation. It would expect as it indeed is obligated to do under the law, as it is now written, that the staff feels there are Rinkleman violations, visual violations, the law says that Western Alfalfa must at its expense perform these particulate tests and judging from the testimony I heard here at the first hearing, unless there is some change in the method of operation of these dehydration plants, I will expect the staff to come out and say we are finding Ringleman violations. At that point, I don't see that the applicant has any choice to avoid a cease and desist order, but to say, alright, we are going to make particulate tests and see if we can get out from under the Rinkleman by showing particulate compliance, and at that time, work with the staff and in making those particulate tests and not go off as we were forced to do this last time, and do them on our own. I think this is going to happen without the Board having to retain jurisdiction, Mr. Foster, is what I am saying.

MR. FOSTER: I ask the question anticipating that the Board would want to give you an opportunity to [7] respond.

MR. CAWELTI: I think what you are looking to happen here is going to happen whether the Board retains jurisdiction or not.

MR. HEATON: I am going to ask our attorney here to help me a little bit at this time. Reading on page two, the first full paragraph. "Emission and Excess of Rinkleman Number two or opasity of 40 percent for a period aggregating for more than three minutes during any hour is in violation of Section 66-29-5 (1) (2), Colorado Revised Statutes 1963, and may not lawfully be permitted to continue except under such terms and conditions as may be found appropriate by the Air Pollution Variance Board. That under the facts and circumstances appearing, it has been determined that Western Alfalfa has been given ample time and opportunity to bring its three plants into compliance with the law, and ten days from the date and receipt of this order, are hereby determined to be reasonable within such company, shall be required to cease and desist from such violation."

Now, the way I look at this thing, originally your statement was that the only hearing would be conducted, was again whether you were violating or not violating. [8] MR. CAWELTI: Yes.

MR. HEATON: Would it now be that you might say that you are willing to operate under such terms and conditions that be held apropriate by Air Pollution Variance Board if we so chose to do that until you and the Department can work together on the thing and it might be then a rehearing?

MR. CAWELTI: Mr. Heaton, it seems to me, that the way we would invoke the jurisdiction of this Board, give you authority to impose terms and conditions on our operations, would be to admit our violation and ask for variance and then the mechanics as I understand it, then

permits us to operate where we have acknowledged the violation, but you set terms and conditions upon our operations.

Now, I don't think the case is quite in that posture. We have denied that we were violating and we have presented evidence that we were not in violation on this date.

Now, of course, that evidence is contradicted by the staff and the Board.

MR. HEATON: The violation, I think, is June 4. You did not present evidence that you were not in [9] violation on June 4.

MR. CAWELTI: Of course, I think we all have to realize that it is physically impossible, because we didn't even know that we were being examined on June 4, and it wasn't until some 20 days later that we had been examined on that date, so we can't say exactly what happened on that day, because it is a matter of history by the time we heard we were being charged for it.

MR. HEATON: You were cited for violation on October 19, 1967, and were sent a note on the violation then, and that was at Eton, October 30 at Birdside, and I don't have a note on Windsor when the first time it occurred there. I think it was a series of violations then.

MR. CAWELTI: I think our testimony shows we did make some significant improvements since those dates too. I am not saying the Board cannot find us in violation on June 4, the evidence before the Board was conflicting. We said that our operation on the date we made observation were the same as they were on June 4, and that at this later date then, we did not have violations.

Now, that is as much as we can do, because obviously we weren't there, and to make our own observation on the same date, the Board made, because we didn't even know the [10] staff was out making observations on that day. So the best we could say, we were still doing the same a month later, and a month later, we looked alright.

So I am not saying that.

MR. HEATON: Let me ask you another question. Do you think yourself able to state that there might have been a violation on June 4, so the Board can cite some conditions?

MR. CAWELTI: I suppose I could do that, then we would have to make application for a variance, which we have not done.

MR. HEATON: Okay. That is the point I want to get. You are not willing at this time to make application for a variance?

MR. CAWELTI: No, we are not, because we believe under the law now, we are—

MR. HEATON: Categorically, you are stating with the regards to the cease and desist order that you received concerning a violation on June 4, and that is dated June 16 with regards to this particular cease and desist order, at the time, your stipulation is that you still do not think you were in violation and will not ask for a variance?

[11] MR. CAWELTI: That's right.

MR. HEATON: You can make it much easier, I think, from a legal standpoint, to really accomplish what is needed to be done on this thing, if you could find some wavering in the thing, and be a little soft on it, if you chose not to, then we can't find it to be easy. The objectivity of this board is to try to clean air pollution in the State of Colorado, but again, we have to have, I feel we have to have your request to allow you to within certain rules and procedures, to operate on in your plant, and again a plan by which you people are going to maybe make further improvement, or a plan in which you are going to work test to prove with you and the department, to prove that you are in compliance over the next period of time, and your plant is now shut down, so these test cannot occur in the future until next May, I suspect, so you are not giving the Board any leeway to do what you want to do.

MR. CAWELTI: Well, Mr. Heaton, you have got to understand that, we really honestly believe that we are in compliance with the Air Pollution Control Standards as they are now written, and it isn't fair for me as an attorney for the group to say, well, why don't you just say you are in violation, so the Board can have jurisdiction, when I [12] I don't think that under the law, we are. And under the tests that we made, we are. I think it is incumbent upon the staff.

MR. HEATON: Let me talk about the law on June 4. The specific law on June 4. As the law reads on that date, and as it reads on June 16. Could you have been in violation on those dates?

MR. CAWELTI: Yes. Our own view is that we were not, and our own testimony is that we were not.

MR. HEATON: No, your testimony was in fact that you were not in violation on August. I don't have the date of that report, but it was August.

MR. CAWELTI: Mid-August.

MR. HEATON: Your testimony is that you didn't think you were in violation of the law as the law read on that date.

MR. CAWELTI: No, we also testified that we operated the same on that date as we were on June 4, and that we have testimony that the Rinkleman standard wasn't being violated on June 4. Again, on observations made a month later, related back on the assumption that the conditions are the same and I realize that is not as good as a person standing there that day, but the evidence, [13] nonetheless to be weighed and considered. I would allow that under ordinary circumstances, it wouldn't be given as much weight as that evidence produced that day, but it is just impossible for us to counter that evidence produced that day.

MR. HEATON: Page 10, Subsection 5 (d).

Now, it is talking about the powers of the Variance Board. Adopted modified, reject the findings, conclusion

of proposed orders of any hearing officers, designated under paragraph (c) of this subsection concerning violations or requests for variances under this article.

MR. FOSTER: That is not pertinent here. That is of the hearing officer.

MR. HEATON: Then it says if such action by the Air Pollution Variance Board results in findings of violations or denial of the requested variance, the party shall have ten days and so forth.

DR. LODGE: There is not a hearing officer involved in this.

MR. HEATON: I interpret this and maybe I am just dumb, that this variance comes by request.

MR. POLUMBA: I think because this is a seasonal operation and has become very apparent here in the discussion, and the principle by which Mr. Cawelti is [14] operating, really doesn't apply in this case, particular case in effect, even though the law has changed, the specific standard which was applied in citing the cease and desist order originally has not. The only difference being in the new law, that there is a provision whereby one standard that is the weight per unit volume of gas could be substituted for the Rinkleman standard, if the division made a correlation on these two standards.

Now, I think the testimony, if it hadn't shown or already continue to show that the division has not made this correlation, and that any future testing by the respondent, which would show a grain loading or a weight loading in the stack, which meets that standard, would not necessarily bring the respondent in compliance with Section 2 of the law, which is the Rinkleman application. And so I think next year if we were to proceed or delay this case until next year, we would be facing the same situation, the division, if the plant were operating under violations of the Rinkleman standard, would cause an order to be issued to cease and desist the violation of

Rinkleman standard and we would be right back where we are today.

MR. CAWELTI: Mr. Polumba, I don't understand. [15] You are saying that this law becoming effective July 1 of 1969, the division is going to put off determining whether there is a correlation indefinitely so that in effect, the relief and defense offered by the law is never going to be available to a person charged? I think at sometime and I should certainly hope by next year, as far as the applicant is concerned, the division will have made this determination, so that we know or we don't know what the division stand on that is going to be.

The availability of this defense cannot be indefinitely postponed, because of inaction of the division in this respect.

MR. HEATON: In defense of Mr. Polumba, Mr. Cawelti, could you tell me the date that your client or you submitted copies of your engineering report to the department of observations?

MR. CAWELTI: That is a very good point, and we were not able to do that before the hearing.

MR. HEATON: Could you tell me the date?

MR. CAWELTI: I think it was the day before the hearing.

MR. HEATON: I think it was the day of the hearing. [16] MR. POLUMBA: There is a misunderstanding here. The Department is not maintaining it has not made a determination. It is maintaining it has not made a determination that there is a correlation between alfalfa dust of .40 pounds per thousand pound in the stack and the correlation between the Rinkleman number two.

MR. HEATON: That is very true, and I understand that, Joe.

MR. POLUMBA: I think Mr. Cawelti was implying that the Department has not made a determination. We have made a determination. The determination is that

there is no correlation to Rinkleman Number two and .40 pounds per thousand pounds.

MR. CAWELTI: That is the first I heard that. The day of the hearing you said you made those and now you said you made a determination that there is not. If I misunderstood you—

MR. POLUMBA: It is a play on words. At the time the statement was made, it was made in the context that we have made no determination that there is a correlation between, and here is where is comes, the confusion, I guess, we have not made a determination that there is a correlation between .40 pounds and Rinkleman number 42, which I think is the same thing. I am saying only [17] in slightly different words.

DR. LODGE: I think it is very easy to be misconstrued, but what you are saying is, that you have made a determination and the determination is that there is no correlation?

MR. CAWELTI: That is correct.

MR. HEATON: What Mr. Cawelti is asking, he at his own expense had a study done and submitting the report to you to see if you might change your determination. Again, am I correct? I may be wrong?

MR. CAWELTI: If he has made that determination, I expect we are asking him to change it.

MR. HEATON: Again, the Division never got it in sufficient time before the hearing to bring their findings before the board at that time.

MR. POLUMBA: From the Department standpoint, I believe the confusion arises from here. I will not quarrel with Mr. Cawelti. We have not made the determination between Rinkleman Number 2 and .40, which we did not make. In other words, there is no correlation between the two, and there is the context within which it was given. Now, you can play on those words and come up with perhaps a slightly different—

[18] DR. LODGE: I must confess, I misunderstood you the first time you said it today.

MR. POLUMBA: I wouldn't quarrel that point.

DR. LODGE: I think it is reasonable misapprehension. I think that we are faced here with a problem that has been skirted around very considerably, and that is precisely this point, the actually, there is in law, nothing to keep Western as things now stand from beginning operations next year, assuming that they are in compliance. The question is compliance with what, and according to the information we have heard today, and I was absent at the previous hearing, it apparently has got to be compliance with the Rinkleman standard, and I think this sets forth something that unless the Variance Board is requested to make a variance, will be the situation that exists at start up time next year.

MR. CAWELTI: The only thing I might add is, now that I understand the position of the Division, I would hope that we have an opportunity to review this matter of correlation with the Division, because we believe that there is a correlation and we believe that it can be shown that the Rinkleman sightings and the particulate [19] emissions will move on a parallel course, and we believe that.

DR. LODGE: I think this is indisputable, sir. The question, and I must confess that I think here that perhaps better legal wording could be used. I don't think that the grain loading increases, the opacity increases. It is my reading of this, and I think that of the majority of the Board, that what is called for in law here is not the fact that there is a curve that moves the two together, but rather that there be the equivalent between two standards, reasonable equivalent between the two standards, that is .40 pounds per thousand pounds of the stuff that you are putting out, produce an opacity of approximately the equivalent to Rinkleman 2.

MR. CAWELTI: I don't know the law requires that equivalency. The law requires the relationship, not exactly the equivalency.

CHAIRMAN IVERSON: I will say this will have to be determined in a court, the way it is written.

MR. CAWELTI: You still ask, Mr. Cawelti, the Board make a finding of fact under the cease and desist order of violation or non-violation?

MR. CAWELTI: That is right, Mr. Heaton. I suggest that it would also be appropriate for the Board [20] to find that even if there had been a violation on June 4, that the continuance of the cease and desist order would serve no useful purpose, because of the situation we all find ourselves in, of the law having been changed.

CHAIRMAN IVERSON: For our deliberations, Mr. Cawelti, I would like to have submitted into evidence, the engineering report, if you will do so please?

MR. CAWELTI: I will be glad to remain around while you are in deliberations in case you care to call on me.

(Board's Exhibit A was marked for identification.)

MR. KREUTZ: I have one statement. This is regarding our meeting. I jotted down a few notes on what you and I and Mr. Foster discussed. I think, did we not, come up to a meeting of the minds regarding the cease and desist order? It was properly issued by the Department of Health and that for further stipulations show that subsequent tests were made by the respondent, namely, Western Alfalfa and are relevant so far as the law exists as of the July 1, namely, subsequent to the cease and desist order, and further that this doesn't preclude the Department or the Division from conducting more tests to [21] determine whether or not Western Alfalfa was in compliance; is that just about what we agreed upon? That is what I have in my notes. I wanted to see if we could agree on those facts.

MR. CAWELTI: That was part of it. I think you understand I didn't stipulate that we were in violation. I said that in order that we would not appeal from this, could be one finding that the cease and desist order was properly issued in June, that the Board recognizes the law pertaining to this matter changed on July 1, that we had made grain loading tests after July 1, showing the particulate emission below the level prescribed by statute and that the Board further find that continuance of the cease and desist order would serve no useful purpose, and also if any orders or directions of suggestions of the Board pertaining to future surveillance of this operation by the Division, could also be set forth by the Board and I indicated that on order such as this would not be appealed by my client.

CHAIRMAN IVERSON: Any further questions on the part of the Board?

MR. HEATON: Could I ask one thing? Mr. Cawelti, you made this final statement, could you submit that in writing to the board? Would you care to?

MR. FOSTER: We have it in the record.

[22] CHAIRMAN IVERSON: Are there any further questions? If not, this meeting is closed.

Whereupon the meeting was closed.)

[Certificate omitted in printing]

## CHRONOLOGICAL LIST OF RELEVANT DOCKET ENTRIES

February 18, 19700—Petitioner Western Alfalfa Corporation's original Complaint for Review Pursuant to 1963 C.R.S., 66-29-13, and Rule 106 R.C.P. filed in the District Court in and for the County of Weld, State of Colorado.

February 19, 1970—Petitioner's Cost Bond filed.

March 5, 1970—Order and Citation to Show Cause entered.

March 20, 1970—Order extending the date within which Respondent shall file record, responsive pleading and show cause.

April 17, 1970—Respondent's original answer filed.

July 27, 1970—Order of Court setting cause for trial.

November 20, 1970—Petitioner's Amended Complaint for Review Pursuant to 1963 C.R.S., 66-29-13, and Rule 106 R.C.P. and for Declaratory Relief filed.

December 7, 1970—Order of Court vacating original trial date and re-setting cause for trial.

March 22, 1971—Respondent's Answer to Amended Complaint filed.

April 23, 1971—Transcript of Trial.

April 23, 1971—Order of Court reserving ruling until Court has had opportunity to review Petitioner's brief and Respondent's answer.

May 3, 1971—Order of Court granting Plaintiffs (sic.) an extension of time within which to file their Brief.

July 28, 1971—Findings and Judgment of the District Court entered, remanding matter to Air Pollution Variance Board of the State of Colorado for further proceedings.

August 5, 1971—Respondent's Motion for Amendment of Findings and Judgment filed.

August 31, 1971—Order of Court entered, setting cause for hearing on Petitioner's Motion for Amendment of Findings and Judgment.

November 11, 1971—Order of Court entered, continuing cause for further hearing.

November 18, 1971—Amended Findings and Judgment entered, setting aside decision of Air Pollution Variance Board.

December 22, 1971—Respondent's Notice of Appeal Filed.

December 22, 1971—Designation of Record on Appeal filed.

December 22, 1971—Designation of Parties filed.

December 30, 1971—Designation of Additional Part of Record filed.

January 20, 1972—Order of Court entered for filing of Transcript of the Record in Court of Appeals by Reporter.

February 22, 1972—Certification of Record filed.

February 23, 1972—Notice of Filing of Record mailed.

April 12, 1972—Motion for Extension of Time filed.

May 31, 1972—Motion for Extension of Time filed.

August 8, 1972—Motion for Extension of Time filed.

September 29, 1972—Motion for Extension of Time filed.

November 2, 1972—Motion for Advancement on Docket filed.

November 14, 1972—Notice of Oral Argument.

November 17, 1972—Continuance of Oral Argument.

November 17, 1972—Oral Argument vacated.

January 5, 1973—Notice of Oral Argument.

April 3, 1973—Opinion of the Colorado Court of Appeals announced.

April 19, 1973—Petition for Rehearing filed.

April 24, 1973—Petition for Rehearing denied.

April 30, 1973—Motion for Stay of Mandate filed.

April 30, 1973—Order for Stay of Mandate issued.

June 25, 1973—Petition for Writ of Certiorari Denied.

June 26, 1973—Mandate issued.

IN THE DISTRICT COURT IN AND FOR THE
COUNTY OF WELD AND
STATE OF COLORADO

Civil Action No. 19974

[Title Omitted]

**AMENDED COMPLAINT FOR REVIEW PURSUANT TO 1963 C.R.S., 66-29-13 (1967 PERM. CUM. SUPP.) AND RULE 106 R.C.P. AND FOR DECLARATORY RELIEF**

COMES NOW the above named Petitioner by its attorneys and for its complaint and petition for review against Respondent, alleges and avers as follows:

*First Claim for Relief*

1. Western Alfalfa Corporation, a Kansas corporation, and with its principal office and place of business located in Kansas City, Missouri, is engaged in the manufacture, storage and marketing of dehydrated alfalfa in a four state area, including two locations in Weld County, Colorado at Windsor and Eaton.

2. Respondent, Air Pollution Variance Board, is a regulatory commission created by the statutes of the State of Colorado as a Division of the State Department of Public Health.

3. On June 16, 1969, Petitioner was issued a Cease and Desist Order with respect to its operations in the within County, based on the allegation that petitioner was operating in violation of the emission standards of the Air Pollution Control Act of 1966, as set out in Section 66-29-5, CRS 1963 (1967 Perm. Cum. Supp.).

4. Thereafter, within the time established by law, Petitioner requested a hearing before the Air Pollution Variance Board of the State of Colorado to determine

the question of whether or not there was, in fact, violation of the applicable Colorado statutes.

5. Thereafter, on September 11, 1969, and October 16, 1969, a hearing was conducted before the said Air Pollution Variance Board at which evidence was presented by Respondent and Petitioner only as to the question of the alleged violation. In opening statements by counsel for petitioner it was reiterated that Petitioner was specifically not asking for a variance in accord with Section 66-29-11, CRS 1963 (1967 Perm. Cum. Supp.).

6. Thereafter, on January 31, 1970, the said Air Pollution Variance Board issued its decision holding that Petitioner's operations are in violation of the emission standards of the Air Pollution Control Act of 1966, as amended, and further denying Petitioner a variance from said emission standards as outlined in Section 66-29-11, CRS 1963 (1967 Perm. Sum. Supp.).

7. Said decision of the Air Pollution Variance Board, together with purported findings of fact and conclusions of law contained therein, is unjust, unlawful, unreasonable, exceeds the jurisdiction of the Variance Board, constitutes an abuse of the discretion of the Variance Board, and is contrary to the law and the evidence.

8. Petitioner has no plain, speedy and adequate remedy other than as provided by this proceeding.

WHEREFORE, Petitioner prays that this Court:

1. Enter an order directing Respondent to show cause, if any it has, within thirty days, why the heretofore referred to decision herein alleged to be unlawful, should not be set aside.

2. Enter an order directing the Air Pollution Variance Board of the State of Colorado to certify within thirty days to this Court a complete transcript of the record, exhibits, orders incorporated by reference in

said record, and all proceedings in connection with or related to the hearings held by Respondent Variance Board in connection with Petitioner.

3. Review the records of the aforesaid hearing before the Air Pollution Variance Board of the State of Colorado, and set aside the purported decision heretofore referred.

4. Issue forthwith an order staying the enforcement of the aforesaid Cease and Desist Order pursuant to Section 66-29-13 and 66-29-15, CRS 1963 (1967 Perm. Cum. Supp.).

5. Upon compliance by Respondent with Order of this Court within thirty days by answering or otherwise pleading to this Complaint, and by the Air Pollution Variance Board of the State of Colorado certifying to this Court its record as aforesaid, that this matter be set for hearing upon notice to the parties hereto.

6. For such other and further relief as to the Court may seem proper.

*Second Claim for Relief*

1. Petitioner incorporates herein the allegations set forth in its First Claim for Relief.

2. The business conducted by Petitioner, referred to in the First Claim for Relief, is a valuable property and Petitioner has invested in it a substantial amount of money; Petitioner's said business and investment will be taken from it if the Cease and Desist Order against it should be sustained as to its validity.

3. The provisions of 66-29-5(2), Colorado Revised Statutes, 1963, as amended (1967 Perm. Cum. Supp.) and presently effective as law in Colorado by virtue of 66-31-24(1) of Section 1, Chapter 64 Session Laws of Colorado 1970, applied to Petitioner have no reasonable

relation to the maintenance of public health, welfare, convenience or comfort of the public, or to the objectives of the Air Pollution Control Act of achieving air purity, and thus deprive Petitioner of its property without due process of law and deny Petitioner the equal protection of the law contrary to the Fourteenth Amendment to the Constitution of the United States and Sections 25 and 6 of Article II of the Constitution of the State of Colorado.

WHEREFORE, Petitioner prays for a declaratory judgment under Rule 57 Colorado Rules of Civil Procedure that the provisions of Section 66-29-5(2) CRS 1963, as amended aforesaid, are void, unconstitutional, ineffective and without force of law as applied to Petitioner.

*Third Claim for Relief*

1. Petitioner incorporates herein the allegations set forth in its First Claim for Relief and paragraph 2 of its Second Claim for Relief.

2. The action of Respondent Variance Board in determining that Petitioner's operations are in violation of the emission standards of the Air Pollution Control Act 1966 was without authority because Petitioner was not accorded due process of law and was denied the equal protection of the law contrary to the Fourteenth Amendment to the Constitution of the United States and Sections 25 and 6 of Article II of the Constitution of the State of Colorado.

WHEREFORE, Petitioner prays that the determination and decision of the Respondent Variance Board be declared void, unconstitutional, ineffective and without force of law for the failure of said Board to afford Peti-

tioner due process of law and the equal protection of the law in its proceedings before the Board.

HOUTCHENS, HOUTCHENS & DOOLEY

By /s/ S. Robert Houtchens
1007 9th Avenue
Greeley, Colorado 80631

LINDE, THOMAS, VAN DYKE,
FAIRCHILD & LANGWORTHY

By: George D. Blackwood
Floor 3, Columbia Union National
Bank Building
900 Walnut Street
Kansas City, Missouri 64106

LEE, BRYANS, KELLY & STANSFIELD

By: Donald D. Cawelti
990 Public Service Company
Building
Denver, Colorado 80202

Address of Petitioner:

Western Alfalfa Corporation
Suite 300, 4800 Main
Kansas City, Missouri 64112

IN THE DISTRICT COURT IN AND FOR THE
COUNTY OF WELD AND
STATE OF COLORADO

[Title Omitted]

## ANSWER TO AMENDED COMPLAINT

COMES NOW the respondent by and through its attorneys Duke W. Dunbar, Attorney General of the State of Colorado, and William Tucker, Assistant Attorney General of the State of Colorado, and answers the Petitioner's Amended Complaint as follows:

1. Respondent admits the allegations set out in paragraphs numbered 1, 2, 3, 4 and 6 of petitioner's first claim for relief (amended complaint).

2. Respondent admits that a hearing was held before the Air Pollution Variance Board on September 11, 1969 and October 16, 1969, but denies each and every other allegation set out in paragraph numbered 5 of petitioner's first claim for relief (amended complaint).

3. Respondent denies each and every allegation set out in paragraphs numbered 7 and 8 of petitioner's first claim for relief (amended complaint).

4. Respondent incorporates the admissions and denials set out above in regard to paragraph numbered 1 of petitioner's second claim for relief (amended complaint).

5. Respondent denies each and every allegation set out in paragraphs numbered 2 and 3 of petitioner's second claim for relief (amended complaint).

6. Respondent incorporates the admissions and denials set out above in regard to paragraph numbered 1 of petitioner's third claim for relief (amended complaint).

7. Respondent denies each and every allegation set out in paragraph numbered 2 of petitioner's third claim for relief (amended complaint).

WHEREFORE, respondent requests that this Honorable Court dismiss petitioner's complaint and affirm the decision of respondent and for such other and further relief as the Court may deem just and proper.

Duke W. Dunbar
Attorney General

John P. Moore
Deputy Attorney General

/s/ William Tucker
William Tucker
Assistant Attorney General

Attorneys for Respondent.

104 State Capitol
Denver, Colorado 80203
892-2351

[Certificate of Mailing Omitted in Printing]

IN THE DISTRICT COURT IN AND FOR THE
COUNTY OF WELD AND
STATE OF COLORADO

Civil Action 19974

[Title Omitted]

**REPORTER'S TRANSCRIPT OF TRIAL**
**(APRIL 23, 1971)**

APPEARANCES:

HOUTCHENS, HOUTCHENS & DOOLEY, 1007 Ninth Avenue, Greeley, Colorado,

By MR. S. ROBERT HOUTCHENS;

LINDE, THOMSON, VAN DYKE, FAIRCHILD & LANGWORTHY, Columbia Union National Bank Building, 900 Walnut Street, Kansas City, Missouri,

By MR. GEORGE D. BLACKWOOD;

LEE, BRYANS, KELLY & STANSFIELD, Suite 990, 550 15th Street, Denver, Colorado,

By MR. DONALD D. CAWELTI,
Attorneys for Petitioner;

MR. DUKE W. DUNBAR, Attorney General, State of Colorado, 104 State Capitol Building, Denver, Colorado,

By MR. WILLIAM TUCKER, Assistant Attorney General,
Attorney for Respondent.

Also present: MR. DAVID FOSTER,
Attorney for Public Health
Department, State of Colorado.

[3] This matter came on regularly for trial before the Honorable Donald A. Carpenter, District Judge, 19th Judicial District, Weld County, Greeley, Colorado, at the hour of 10:00 o'clock a.m., April 23, 1971.

WHEREUPON the following proceedings were had, to wit:

THE COURT: Case Number 19974, Western Alfalfa Corporation, a Kansas Corporation, versus Air Pollution Variance Board of the State of Colorado.

Is the plaintiff ready?

MR. HOUTCHENS: We are ready, your honor.

THE COURT: Is the defense ready?

MR. TUCKER: Yes, your honor.

THE COURT: You may proceed, Mr. Houtchens.

MR. HOUTCHENS: I would like to introduce counsel for Western Alfalfa, George D. Blackwood, Jr., from Kansas City, and Donald Cawelti from Denver.

MR. TUCKER: I would like to introduce Dave Foster, counsel for the Public Health Department, and I as William Tucker, assistant Attorney General, State of Colorado.

MR. CAWELTI: I would like to make brief opening remarks as to the nature of the proceedings and what I expect to ensue in the hearing.

(Whereupon opening statements by Mr. Cawelti and Mr. Tucker were taken, in part, but are not here transcribed.)

THE COURT: It is my understanding—correct me—so that I will know the direction of this case, that the attack will be on the matters set forth in 66-29-4, 66-29-5, [4] as a proper basis for the evaluation; is that correct?

MR. CAWELTI: That is essentially correct, and the general procedures used in administering this, not as applied to this petitioner.

THE COURT: I can't go into general administrative things. It has to be specific as related to this case of application of these sections. But there is no desire on the part of the plaintiff, is there, to alter, amend or superimpose the decision of the court over the administrative activity of the fact-finding body; is that right?

MR. CAWELTI: No, your honor. The only thing is, I don't think it proper for the plaintiff to ask to do that. If there is evidence in the record on which the variance board acted, I don't think that I can ask this court to substitute his judgment for the variance board.

What I can do, and what we are asking, is that this court consider the constitutional basis, if there is a constitutional basis, and the statute, for the board to act.

THE COURT: Using these tests as the basis for their act; is that correct?

MR. CAWELTI: Exactly.

THE COURT: The court understands. You may proceed.

MR. CAWELTI: I would like to call the first witness, Dr. Lou York.

DR. LOUIS YORK,

called as a witness by and on behalf of the Petitioner, having been first duly sworn, was examined and testified as follows:

[5] DIRECT EXAMINATION

BY MR. CAWELTI:

Q. Please state your name and your business address.

A. The name is J. Louis York. I am employed as an environmental scientist by the Stearns-Roger Corporation in Denver.

Q. What is the address there?

A. 700 South Ash Street.

Q. Doctor, would you describe your educational background?

A. I received a bachelor of science in engineering from the University of New Mexico in 1938. Then I attended the University of Michigan and received a Master's degree in chemical engineering from that institution in 1940, and after sometime which involved teaching and other activities, I received a doctor's degree, doctor of philosophy in chemical engineering at the University of Michigan in 1950.

Q. Have you been associated with university or teaching activities since that time?

A. I became a member of the faculty of the department of chemical and metallurgical engineering at the University of Michigan in 1942 in February. I had actually been a teaching fellow prior to that time, and I remained a member of that faculty, directing research, teaching courses, writing textbooks, doing consulting work, until June, 1970, at which time I moved to Denver and joined the Stearns-Roger Corporation.

Q Have you had during this period of time an area of special interest or special work in chemical engineering, mechanical engineering?

A. I have worked in several areas, but they would be generally classified as being in the field of multiple-phase [6] systems; that is, suspensions of solids or liquids in gases or of solids or other liquids within liquids involving research and teaching on their properties and the way they can be handled. As a major aspect of that I have been working 15 to 20 years, approximately, in the field of environmental activities, primarily pollution control with special emphasis on air pollution control.

Q. Outside of university life, have you been engaged as a consultant or supervisor to persons, public or private, in air pollution matters?

A. Yes. I served as a consultant to several corporations on various types of applications, both in the determination of air pollution problems and in the correction of such problems; working with firms that designed, built and installed equipment for this purpose.

Q. And have you written any published works on air pollution matters?

A. I have written some technical articles that are related to basic scientific aspects of this work. I was a co-author of a principle textbook in chemical engineering operations which dealt with all the principles involved in this, and touched on the problems of pollution control, to some extent.

Q. Have you lectured on pollution matters to bodies, public or private?

A. Yes, I have taught courses. I developed a course in the air pollution control equipment about 7 years ago which I taught exclusively until I left the university. I have given talks and lectures before public groups, various conventions and gatherings.

[7] Q. And what are your duties and responsibilities presently with Stearns-Roger Corporation as an environmental scientist?

A. The environmental sciences department of which I am a part—I am the staff assistant, basically, to the manager of that department, is charged with assisting the customers of the corporation in analyzing their problems in all forms of environmental problems and solutions thereto, air and water; other areas. And we work in the design and construction and installation of control equipment for this purpose. I have a rather large responsibility in the area of air pollution because of the background experience I have had.

Q. Doctor, are you familiar with the term Ringelmann as described in U.S. Bureau of Mines Information Circular 7718, dated August, 1955?

A. I am. There is a later circular which includes the same material as that one, plus some additional instructions on how to use it.

Q. Well, I was referring to the definition as given in our Colorado statutes. What is basically meant by the Ringelmann, as referred to in the statutes I just mentioned in this information circular?

A. Would it be all right to show such a chart?

Q. It certainly would.

(Whereupon a document was marked for identification Petitioner's Exhibit A.)

Q. Dr. York( I hand you what has been marked as Petitioner's Exhibit A. Would you first identify that exhibit?

A. This is an information circular Number 8333, published by the United States Department of Interior, Bureau of Mines, [8] which is stated to be a revision of the one you mentioned, 7718, which is no longer in print, and in the introduction to this and the abstract, it states that it incorporates the same material, but adds more detail regarding the use of the chart.

Q. You intend to use that exhibit only to refer to the Ringelmann chart that is in the exhibit?

A. Yes, which is identical with that in the previous chart.

MR. CAWELTI: I belive I shold offer this into evidence at this time if we are going to refer to it further.

MR. TUCKER: No objection, your honor.

THE COURT: Let it be received.

Q. (By Mr. Cawelti) Dr. York, I hand you back Exhibit A. You were going to proceed with an explantion of what the Ringelmann test refers to. You may do so.

A. The Ringelmann test is named after a man named Maximilian Ringelmann who was a professor in Paris, and in 1898 he published the first known information about it. He might have developed it earlier, but we

know nothing about it before that time. His objective was simply to attempt to establish a means by which the amount of smoke leaving a chimney could be evaluated particularly in regard to the efficiency of the combustion, recognizing that if the combustion is inefficient, there will be more carbon monoxide and therefore black smoke. His concept was to develop a chart which was printed in a pattern involving differing areas of black and white, and this chart shows such a patern. This, in connection with the two others which are not bothered to be printed here because one of them is a perfectly white sheet of paper and the other is a perfectly black sheet of paper, constitute the so-called [9] Ringelmann numbers which is the white one, (1) which is the one to your left, which shows a 20 percent black space and 80 percent white space; the Ringelmann 2 is 40 percent black space, 60 percent white space, and so on in 20 percent increments. The last one on the right is Ringelmann 4, which is 80 percent black and 20 percent white, and, of course, 100 percent black would be Ringelmann 5 by the scale which he developed. The purpose of this chart was to have it set at a distance from the observer such that the black and white lines could merge into a shade of gray. It requires it be located perhaps 50 feet away, depending on the observer and environmental conditions. Then the observer would look at this chart and look at a stream of smoke from a chimney; attempt to compare them with which one of these shades of gray matched that smoke most precisely. By so doing, he then had some kind of measure of the smoke leaving the chimney. This chart was developed only for that purpose for combusion, carbon smoke, black smoke, and neither Mr. Ringelmann nor the Bureau of Mines' report indicates any reason to consider that it should be applied to anything other than a carbon smoke.

Q. The statute also refers to equivalent opacity with regard to Ringelmann. Would you discuss what equiva-

lent opacity could or would mean with regard to this chart?

A. As I understand the intent of equivalent opacity, it was to attempt to say that the comparison of smoke from a chimney with this chart was a little bit cumbersome to use, because it required setting up the chart at some distance and comparing the smoke with it. There was a desire to try to evaluate emissions that were not black. There was a feeling [10] that the smoke could be basically estimated in terms of amount of light which would be transmitted through it and the obvious phrase "opacity" relates to the opaquesness or the amount of light which can be transmitted through it, as a percentage of the light which is impinging upon it, so there has been an attempt to establish some kind of an equivalent value.

Now, the numbers which are most often used are that if the Ringelmann chart requires 40 percent black and 60 percent white to match the particular smoke, then the assumption is that light transmitted through that particular cloud of smoke would be only 60 percent transmitted and 40 percent would be rejected. This has some severe difficulties in that a reflected light from a surface such as the Ringelmann chart, is totally different from a transmitted light, and certainly when you change colors, you now have no way to compare the black and white mixing to form gray, which is the action of the Ringelmann on black smoke.

Q. Dr. York, in your experience with air pollution matters, and in handling particulates in streams, can you give your opinion as to whether the Ringelmann chart constitutes a reliable means of determining emission quantities in a given stream?

A. The Ringelmann chart as used, as the Bureau of Mines proposed it, does form an approximate basis for evaluating black smoke, particularly carbon smoke. In terms of how it can be applied to white smoke or smoke which is mixed with steam, any of these problems, that

is almost impossible, and I don't think that anyone really attempts to use the Ringelmann chart itself for that purpose.

[11] Q. What are the factors that affect the Ringlemann observations, opacity observations, that may have no relationship at all to the amount of the actual emissions involved? Will you discuss those factors?

A. Since the usual objective of air pollution control requirements is to control the amount of emissions, the defect is in attempting to relate such a visual observation to the actual amount of these emissions. If the Ringelmann chart is used, then obviously the colors affect the performance; a steam of white smoke is clearly going to be Ringelmann zero, regardless of how much material it may have in it, and, therefore, it cannot be compared against such a chart. If, however, the concept is used or at least attempted to be used, that you can relate the actual Ringelmann number to an opacity in terms of the amount of light which is transmitted or, conversely, which is not transmitted by the cloud, you then find that there are many, many variables involved. One of the largest, one of the most important of these is the actual particle size because for the same amount of material emitted at the stack, the particle size is crucial in determining whether or not light can be transmitted through it. The spacing between the particles is very important. The further apart these particles are, the more light will be transmitted through the cloud in any case. The wavelength of the light is a significant factor. The environment, if you please, around it—that is whether the attempt to measure it is based upon comparing it with a blue sky in the background or a cloudy sky in the background or a mixture, or perhaps a stormy day—it makes a great deal of difference whether or not the smoke is rising in a stagnant atmosphere [12] and forming a rather undispersed cloud, or whether it is mixed by the wind.

Q. Are you saying by this, that these factors could determine whether the visual observation was in compliance or not in compliance with the law, and may have nothing to do with the actual amount of emissions going up?

A. That's right; for an emission of the some total which would be consistent and steady through the day, if all of these things varied, you would get a totally different estimate of the apparent Ringelmann or opacity.

Q. Have you prepared a demonstration of these matters you are talking about, speaking particularly with reference to the particle size affecting the appearance?

A. Because it is rather difficult to use smoke in the courtroom without causing, I think, undue problems, I chose to suspend some solid materials in water to give us a similar result.

(Whereupon exhibits were marked for identification as Plaintiff's Exhibits B and B-1.)

Q. I hand you what the reporter has marked for identification as Plaintiff's Exhibit B and B-1. Would you first tell us for the record what these are?

A. Exhibit B happens to be simply a small, square glass bottle which contains water in which I suspended a small amount of fly ash taken from the residue from burning coal. B-1 is a bottle of the same size containing the same amount of water in which I introduced the same amount of material, in this case, sand, which is of considerably larger particle size.

Q. From these two bottles, then, what conclusion do you [13] derive as to the effect, the visual effect, as related to particle size?

A. Since these contain the same amount of solids, and the one with the fly ash in it contains thousands, perhaps millions of particles which are less than a micron, or in the order of size, that is, a millionth of a meter, we have that same amount distributed widely

throughout the suspension and it is difficult to see through it. It does not give a very large amount of light transmission. The identical amount in a larger particle size in this case of the sand, gives essentially little effect upon the transmission of light through that bottle.

Q. Exhibit B you have just referred to with the fly ash in it, would that be over 40 percent opaque, judging from you experience in air pollution work?

A. Now you ask me for a personal judgment since I am not and cannot be qualified to make an official judgment, but this is more than 40 percent.

Q. Which is the standard in the statute on a violation, is it not?

A. Right.

MR. TUCKER: I would object to this testimony in regard to these two exhibits. The witness is testifying in regard to particulate matter, which is a fly ash in the one bottle and sand particles in the other bottle, and the whole purpose of the air pollution law is to prohibit the emission of particulate matter that is fine enough to go into the atmosphere. I can bring a boulder in here and give the same example, but that boulder is never going to get in the atmosphere because it is not of the weight and density that [14] is going to be emitting into the atmosphere, so this testimony is completely irrelevant to air pollution control, plus he has them in a bottle of water, and we are talking about smoke.

THE COURT: Isn't this more or less foundation testimony in the area of demonstrative evidence to illustrate to the court that the fineness of particles have to do with the transmissibility of light through it? I think that is the sole reason for the exhibit, is it not?

MR. CAWELTI: Yes.

THE COURT: I will overrule the objection.

Q. (By Mr. Cawelti) You also refer, Dr. York, to, I believe, the effect of the diameter of the emission that is being valued under the Ringelmann test, and how that

might influence the Ringelmann observation or opacity observation, did you not?

A. I referred to the problems of the space between the particles, which is a function of whether or not the cloud expands and has a larger diameter at one point than another, and the effect of diameter is important because the distance through which we look at a—we look at this cloud, makes quite a difference in the impression of the smoke on the actual observer.

Q. A cloud of the same density, if you look through twice as much, will look darker or more opaque?

A. That's right.

Q. Have you prepared any demonstrations of that effect you just described?

(Whereupon exhibits were marked for identification as Plaintiff's Exhibits C and C-1.)

[15] Q. Referring, Dr. York, to what the reporter has marked as Exhibit C and C-1, they look identical to me. Will you describe what they are?

A. They are intended to be identical. Each of these bottles contain some water and one drop of India ink, the black drawing ink which basically is a suspension of carbon vary finely divided soot in liquid, which is admixable with water. Therefore, these two each have soot present in them as a fine suspension. I used this simply because it shows a little more clearly the effect, and they should be essentially alike. You have to have the same background. I have a point of interest here in order to make sure that they are alike. If you look at one against a light background and one against a dark, there is quite a difference. If you look through two of them together, both of them, the light is obscured much more. Therefore, the concern here is that if we had a large stack with a certain concentration of solids in it, in the gas this would appear to be much darker than several small stacks with the very same concentration operating at the same number of pounds of emission, per thousand pounds

of gas. Therefore, the size of the stack is important in determining what the actual emission, Ringelmann reading, might be.

Q. In other words, looking through those, you will have a higher Ringelmann number than you would through any one of them by themselves.

A. Based on simply the fact of the light opacity, a larger amount of the light is bound to be obscured by twice the thickness, even though the concentrations are the same.

Q. Referring back to your exhibit B, I believe it was, [16] the bottle with the fly ash in it, could you demonstrate with that exhibit the effect of the background against which emission may be read in determining the Ringelmann reading?

A. I indicated earlier that the background light is important in determining what we have, and I just showed a moment ago that the background makes quite a difference. I have here a show card which is simply an off-white color which corresponds, roughly, to a lightly clouded sky. You can get one effect there. If you have a blue sky, which this card is intended to represent, you will get a different effect, so that you can get some contrast in the way this is read, depending upon the background light. If you actually went to a black card, it appears to be much whiter than it would have been, and therefore, might well acquire a much lower Ringelmann number. Fortunately, we don't have many black skies, but sometimes we have black hillsides or background, depending on the local situation.

Q. This will affect the Ringelmann reading, even though the same densities may be involved?

A. Well, it probably will. This depends a great deal on the observer whose judgment is necessarily used here.

MR. CAWELTI: I wonder if we ought to offer those three colored charts.

(Whereupon exhibits were marked for identification as Plaintiff's Exhibits D-1, D-2 and D-3.)

Q. (By Mr. Cawelti) I hand you what the reporter has marked as exhibits D-1, D-2 and D-3. Would you please, by referring to your past testimony, tell which is which?

A. D-1 is a card which is a bluish color. D-2 is [17] a gray or off-white color, and D-3 is black.

MR. TUCKER: I have no objection, your honor.

THE COURT: Let them be received.

MR. CAWELTI: I am not sure I made the offer of Exhibits C and C-1, and I would do so at this time.

THE COURT: Any objection?

MR. TUCKER: Same objections as were lodged before, your honor.

THE COURT: Objection overruled. Let them be received, as demonstrative evidence only.

Q. (By Mr. Cawelti) Would you comment on the effect of the presence of steam or uncombined water particles and a path of emission in making these observations you described, Ringelmann opacity?

A. Obviously, steam, or what most people call steam is really condensed water vapor in fine particles, which is often seen an an emission from cooling towers; occasionally, from combustion sources. Nearly always on days of reasonably high humidity from alfalfa dehydrating plants. Any source which involves combustion to increase the amount of water will cause the emission of water vapor which condenses as soon as the steam is cooled to dew point. This creates a cloud of steam which is pure white and which cannot be separated from any other particles which may be suspended in it. Therefore, it obviously affects the color and it affects the opacity of that plume to a considerable extent. In many cases it may evaporate as the air mixes and it blows further away. In some cases, such as this morning, when we had a relatively high humidity, some of this often rises right up into the clouds and it appears to vanish and perhaps it [18] doesn't vanish. It may actually become a part of the

cloud. That obviously must affect any measure of opacity because it is opaque as anyone who has even driven through a cloud of fog from a cooling tower realizes, the visibility is greatly impaired by that. Since it is white, it cannot give you a reasonable reading on the Ringelmann number, and since it is opaque, it cannot give you a reasonable number of opacity. Therefore, evaluation must be made either in the absence of such water vapor, or at some point far down the stream after the cloud is well mixed with air and the steam has evaporated again into water vapor.

Q. Are you familiar with the nature of emissions from alfalfa dehydrating operations?

A. Yes.

Q. Is there a quantity of steam present, a significant quantity of steam present in these dehydrating operations?

A. A large amount of steam, because the prime purpose of alfalfa dehydration is to evaporate the water from the alfalfa, so its primary emission is that of steam.

Q. We have discussed the frailties of the Ringelmann test and equivalent opacity and so forth. Are there accepted means of measuring the amount of particulates or emission in a given emission source?

A. Yes. There are some accepted means. These usually involve sampling of the actual emissions going up the stack and removing the sample and collecting it, analyzing it, determining its nature and its total quantity, calculating back to the total quantity of the emissions in the stack.

Q. Are there publications describing these accepted means of making samples?

[19] A. Yes. That method is actually described in the Colorado law as referred to. The American Society of Mechanical Engineers has a very active committee on power test codes and this is one of the things they ac-

tually did develop as a method of determining dust concentration in a gas stream. It is know as P.T.C. 27 which stands for power test code 27 of the American Society of Mechanical Engineers.

Q. Dr. York, in your familiarity with matters concerning air pollution testing for air pollution, are you aware of any publications or studies, published studies concering the accuracy of inspectors in making their readings of opacity or Ringelmann?

A. There have been many publications which have been based upon experimental tests. One of the more obvious ones was published by Professor Mayers back in 1937 in which he spotted some difficulties involved in the use of the Ringelmann number. The most important of these, however, was published as a document of the Department of Health, Education and Welfare through the National Air Pollution Control Association, which is now the Air Pollution Control organization of the Environmental Protection Agency. This is what they designate as A.P. 30 and is entitled "Optical Properties and Visual Effects of Smoke-Stack Plumes." It was published in 1967.

Q. Did that study report the results of testing that was done with experts, inspectors in Ringelmann and opacity matters?

A. Among other things, it did involve the operation of having several trained inspectors who, I believe, were [20] employed by the Bay Area Pollution Control District.

Q. Is that San Francisco?

A. San Francisco area; present at a site where a special form of smoke emission apparatus was established that would produce smoke that was black by virtue of incomplete combustion of oil, or that was white by virtue of the high pressure atomization of oil, into the stream of gas. These inspectors were qualified, trained and experienced, although nothing is given of their indivd-

ual experience or their names. They were established to the east and to the west of that site. Occasionally, their results were combined. They were asked to determine the apparent Ringelmann number of plumes of both black and white smoke which had been generated, particularly in this apparatus, and measured by a special light transmission device to determine the amount of opacity of the stream in the stack prior to the time it was emitted into the atmosphere.

MR. TUCKER: I will object to this testimony. This witness is testifying to something that is in a booklet which I would think would fall within the purview of the hearsay rule. He is talking about something he knows nothing about, except what he has read in this book. The people who conducted the tests are not here for us to cross-examine in regard to the conditions they were conducted under, and the purpose for which they were conducted or the people involved, and he is merely telling us what he has read in a book. He doesn't know about these particular tests.

THE COURT: I agree with you that the best evidence rule is involved, if there is an official document. Doesn't this come within the purview of the statute of official [21] documents being acceptable in evidence? But your objection is tenable as far as being not within the best evidence rule. The court will sustain the objection.

MR. CAWELTI: I would like to have marked for an exhibit, your honor, this document that the witness has been referring to.

(Whereupon an exhibit was marked for identification as Petitioner's Exhibit E.)

MR. TUCKER: Our understanding of the introduction of official documents is that they can only be introduced if 1) the official is present, or 2) if the party has

a certified document from the officials saying that that is a true and correct copy.

THE COURT: Your understanding differs from mine.

Q. (By Mr. Cawelti) Dr. York, I hand you what the reporter has marked as Petitioner's Exhibit E. Would you please identify what this exhibit is?

A. This is the report AP-30 which I referred to earlier, which is the publication of the Department of Health, Education and Welfare, entitled "Optical Properties and Visual Effects of Smoke-stack Plumes."

Q. This is an official governmental agency?

A. Yes. It is published by the National Air Pollution Control agency which was at that time an arm of the United States Department of Health, Education and Welfare.

Q. Now it is part of the Environmental Protection Agency?

A. Now it is part of the Environmental Protection Agency.

[22] Q. The testimony you were engaged in before the objection was made, is that from a particular portion or page in that Exhibit E?

A. I think the most pertinent sections of it involve the Tables 1 and 2 on page 28 which show the results of the tests by the inspectors examing these plumes, both black and white.

Q. Thank you, doctor.

MR. CAWELTI: I would offer in evidence Exhibit E.

MR. TUCKER: Our objection is the same.

THE COURT: Yes. Objection overruled. Let page 27 and 28 be received in evidence.

Q. (By Mr. Cawelti) Dr. York, have you been involved as a consultant or otherwise in the manufacture and design of equipment, design for air pollution matters to prevent air pollution?

A. To some extent I have. I have also been much more deeply involved with the specification and evalu-

ation of bids and purchases and guarantees for such equipment from the manufacturers who specialize in it.

Q. In your familiarity with specifications and guarantees then, on air pollution, on air abatement equipment, is it possible, or is it done that manufactures of this equipment or designers of this equipment will design to meet a Ringelmann number or capacity standard in their eventual emission?

A. They will not. They will design to meet a mass quantity emitted, or concentration. They will design to a specification percentage removal, but no manufacturer will design any piece of equipment or guarantee its performance at least, to meet a standard which is as variable and as [23] dependent upon the observer's judgment as the Ringelmann number.

MR. CAWELTI: I have no further questions.

THE COURT: You may examine.

CROSS-EXAMINATION

BY MR. TUCKER:

Q. You have testified in regard to opacity as an equivalent to the Ringelmann reading. Is an opacity simply the amount of light that passes through material or substance?

A. Transmission is the amount of light which passes through. Opacity is basically the amount which does not pass through. It is the degree of opaqueness.

Q. And do you accept the Ringelmann as a valid means of determining the opacity of black smoke?

A. It can be correlated with opacity by an experienced observer, but I think it is a very poor standard.

Q. But it can be correlated by a trained observer?

A. On black smoke it has worked reasonably well, if the man is trained and is able to evaluate the differences in the lights and the visibility. However, you do have the difficulty that it cannot give you a decent number

for different thicknesses of smoke, nor can it take into acount the mixing and the concentration, adequately. So the only real advantage of the Ringelmann number as a measuring quantity is to have it correlated with an actual measurement from a particular source, and it can then be used to compare the performance of that source on that material from time to time, but it is impossible to compare one source from one size stack burning one fuel or producing one kind of carbon [24] with that of another, and expect it to be perfectly reliable.

Q. But the Ringelmann has never been put forth to determine quantity. We are worried about opacity, not quantity, so it is a valid means of determining opacity of black smoke is it not?

A. I don't think that, in my judgment, it is a valid means of determining opacity, because it depends upon the angle of the light and the experience of the observer. I think it has rather servere disadvantages in that the possibilities of error are manifold in the system, and there is no possible way for a so-called violator to check up on the performance of his equipment.

Q. So you disagree with your exhibit, then, in regard to the Ringelmann, that it is a means of reading the opacity of black smoke?

A. Which exhibit, sir?

Q. The Exhibit A.

A. I don't disagree with it in terms of being a comparison. This exhibit is not intended to be a law. It is simply a service which the Bureau of Mines furnished to the public at large. If a particular information agency or legislative body wishes to establish the Ringelmann number as a basis for legal enforcement, they have the problems then of making it stand up.

Q. You have also testified that there are more problems in getting a Ringelmann reading on white smoke as opposed to black smoke. It that a correct statement of your testimony?

A. Very many problems, yes.

Q. Don't you have the same variables in regard to the background, the weather, the atmosphere, etc., with black [25] smoke as you do with white smoke?

A. By and large, yes. In regard to the wave length of light, which is absorbed, the effect of the thickness and the forward scattering of the light, you get a different effect for different colors of smoke. Therefore, it makes a different impression upon the observer.

Q. In regard to Exhibits C and C-1, you have testified that if an observer was looking through both of those, he would probably get a higher Ringelmann reading than he would if he was simply looking through one of them; is that correct?

A. That's correct.

Q. Don't you think he probaby should, because the emission would be twice the amount if he were looking through both, as if he were looking through one?

A. From that standpoint, yes, but that does not tell him what the concentration is.

Q. He would, though. Now, you also testified that no one uses the Ringelmann for white smoke, or smoke mixed with steam; is that correct?

A. The Ringelmann chart, I believe I said.

Q. Are you familiar with the air pollution laws in the United States?

A. Most of them, yes.

Q. Is it not true that practically every air pollution law in the United States uses the Ringelmann chart as a means of determining a violation of the law or not?

MR. CAWELTI: I would object to this question in finding out what the laws of 48 adjoining states are. I don't know if we should get this from the mouth of an [26] engineering witness qualified—

MR. TUCKER: He has testified no one uses it. I want to see if he knows no one uses it or not.

THE COURT: Well, that isn't quite the way I understood his testimony, but I will permit the question.

Q. (By Mr. Tucker) You may answer the question.

A. The way most of these laws are written is similar to the one in Colorado which states the Ringelmann chart of such and such a report number are an equivalent opacity and to my knowledge at least no employee of the State of Colorado or most of the other states I have any familiarity with ever carries a Ringelmann chart with him and sets it up and compares it to any white smoke.

Q. But is it your testimony that no air pollution control officials in the United States use the Ringelmann on white smoke, or smoke mixed with steam, to cite a violation?

A. That is my testimony because I believe the only ones who do that are using an opacity term which they believe is equivalent.

Q. Now, you have also testified that there are accepted means of measuring particulate emissions from a stack, and that the recognized or accepted methods of measuring these particulate emissions are set out in Colorado statutes; is that correct?

A. I believe the current law does specify that particulate emissions can be measured or must be measured according to the Power Test Code 27 or an equivalent approved standard method by the State Health Department.

Q. Are you familiar with the Colorado air pollution act?

[27] A. Reasonably so. I can't quote it, of course. I am talking about the one which is now in effect.

Q. I am going to hand you a copy of the 1970 air pollution control act and ask you to point out to me the statement you just made.

A. This is the enabling act. It provides a control emission be established which sets up rules and reg-

ulations and they are granted that authority in this act, and obviously the statement is in the rules and regulations, because this act was deliberately changed in order to extract from it, from the previous act, specific emission standards.

Q. So it is not in the law?

A. Not in the enabling act.

MR. CAWELTI: I think the question is unfair to the witness. The law can well constitute lawfully adopted rules and regulations as well as statutes themselves. The witness has said it is in the rules and regulations I think the question is a little unfair to this witness, who is not a lawyer, to say what is in the law and what is not, which maybe comes back to my original question.

THE COURT: Yes.

MR. TUCKER: I am asking about a question he made. I didn't bring it up. He did.

MR. CAWELTI: I think he has shown it is in the law. He said it is in the lawfully adopted regulations.

THE COURT: It has been asked and answered, gentlemen. I don't see any reason for ruling, not at this point. If the court believes it is improper question, the court will consider it at the time it makes its decision. I think your objection was directed more to the line of [28] questioning than to the specific question.

MR. CAWELTI: I think it was probably a little too late, too, your honor.

Q. (By Mr. Tucker) In regard to Exhibit E, are you familiar with the fact that the purpose of the charts in there was to show the variation which trained observers would get when they were facing different directions and looking into or away from the sun?

A. As part of the problem, yes. The direction was important. There was also the comparison of both black and white plumes.

Q. The purpose of that pamphlet is to show variables which a trained observer takes into consideration when he is viewing a smoke plume; is that not correct?

A. That was one of its purposes. It also reports the results obtained when such trained observers actually are confronted with plumes, and shows their difficulties in actually estimating these values as closely as the law or the regulations or the public would desire.

Q. Do you know what the cost of setting up and sampling a particulate emission from a stack would be?

MR. CAWELTI: I object to that question, your honor. I fail to see its relevancy. If the state intends to justify its standards used by means of expediency that it costs too much to do it property, I think that is not a—

THE COURT: Objection sustained.

Q. (By Mr. Tucker) You have testified that you are familiar with the Ringelmann chart and of the Ringelmann readings. Are you also familiar with the fact that it is a necessarily recognized test?

[29] MR. CAWELTI: I object to that question, your honor. What a necessarily recognized test may be is anybody's judgment. Necessarily recognized by whom? Dr. York himself is a necessarily recognized expert. Certainly he doesn't recognize it. I think the question could be rephrased, perhaps, to get a more factual answer.

MR. TUCKER: Your honor, he has testified he is familiar with this.

THE COURT: The question isn't a very good question in that it "is necessarily recognized." Necessarily recognized by whom? Experts in the field, or recognized by persons that have not attended the fourth grade, or which group is it that is recognizing, and what gives it recognition?

Q. (By Mr. Tucker) Mr. York, is not the Ringelmann test necessarily recognized by experts in the field of air pollution as a means of determining the capacity of smoke emissions?

A. It is incorporated in many laws and it is employed by many state enforcement agencies, but the people who design equipment and who have to design plants and who have to live under those regulations, do not recognize it as being a fair and valid method of measuring.

MR. TUCKER: No other questions, your honor.

THE COURT: Thank you.

MR. CAWELTI: I have no redirect, your honor.

THE COURT: You may step down. Thank you, doctor.

MR. CAWELTI: I would like to call James R. Taylor, please.

JAMES R. TAYLOR,

called as a witness by and on behalf of the Petitioner, having [30] been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CAWELTI:

Q. Please state your name and your business address.

A. James Robert Taylor, 4210 East 11th Avenue, Denver, Colorado.

Q. By whom are you employed and in what capacity?

A. Colorado Department of Health, Air Pollution specialist.

Q. What are your duties and functions in that position?

A. Right now I am working mostly in monitoring, coordinator with the laboratory.

Q. By monitoring you mean making observations of emission sources in Colorado?

A. No, sir.

Q. You have done that work in the past?

A. Yes, sir.

Q. You have been an inspector for the department?

A. Yes.

Q. You are not doing this any more?

A. No, sir.

Q. In connection with the inspections you made for the department, are you familiar with the Ringelmann test chart? Let's put it this way. Are you familiar with the U.S. Bureau of Mines Circular 7718 dated August 1 of 1955?

A. Yes, sir.

Q. In your training to make inspections, did you train with the Ringelmann chart set forth in that Bureau of Mines circular I have mentioned?

A. I think at one time we did use the chart, but I think later on as the school progressed in its activities we started using it more from observation from the stack in [31] comparison with the meter.

Q. You did not train as such with the Ringelmann chart?

A. No, sir.

Q. Did you ever train to determine equivalent opacity from the Ringelmann chart as mentioned in this circular?

A. No, sir.

Q. Were you ever trained at this school you referred to, or otherwise, in making opacity readings where steam was also present in the source of emission?

A. No, sir. We don't have that capability.

Q. From your knowledge of the smoke school conducted by the state, is there any way a non-publicly employed person can be graduated from or certified by this school?

A. I think it is the decision of the division that they not be.

Q. They are not?

A. Right, sir.

Q. You were the inspector that made the observations that led to the cease and desist order with regard to the Western Alfalfa?

A. One of them, yes.

MR. CAWELTI: I have nothing further.

THE COURT: Doesn't this go into the matter pertaining to the administrative hearing, gentlemen? This testimony?

MR. CAWELTI: I didn't intend it would, your honor. I intended only to show the method by which the Ringelmann chart was or was not used by the state generally.

THE COURT: Thank you.

CROSS-EXAMINATION

BY MR. TUCKER:

[32] Q. Did you attend a so-called smoke school to learn to read opacity and Ringelmann readings?

A. Yes.

MR. CAWELTI: I object, your honor, being beyond the scope of my direct examination.

THE COURT: Objection overruled. It is already answered. You may proceed.

Q. (By Mr. Tucker) Would you explain to the court what this school consists of and what you do there?

A. Well, we have a smoke generator at the camp that produces both black and white smoke, and in varying degrees, to read by a meter, and the—

Q. May I interrupt you? What is the meter you are referring to?

A. It is a meter that is with the light source with a photo-electric cell that measures the stack and relates it back through relays onto a meter which is graduated in percent opacity or Ringelmann reading. We run primarily—When the school starts, originally, we run a series of black smoke. We tell the observer what this reading is. Then we run this white smoke and tell the observer what the opacity is. We do this several times, and then we do what we consider an official run where we make the densities of the smoke. We ring a bell. At

that time they make their observation. We change it, ring another bell and we do this for 25 black readings and 25 white readings. And then we are graded after the series is run. Then we call off what the meter readings were. They, in turn, make the relationship between what they read and what the meter reading was.

Q. What percent of error do you have to have to [33] graduate from the school?

A. Five percent.

Q. And are you required to attend this school on a regular basis once you have graduated from the school?

A. Yes. I think the established time now is every six months.

Q. Are you trained at the school to take into consideration when you are making Ringelmann or opacity readings, the background, the weather, the atmosphere, the temperature, and the position of the sun and other variables which can affect the reading which you get?

MR. CAWELTI: I object to this question. It is obviously a leading question, and this is an employee of the—

THE COURT: Objection sustained.

Q. (By Mr. Tucker) Are you taught at the school to take into consideration variables when you are taking your Ringelmann opacity readings, and if you are, what are the variables?

A. Yes, we do. We have the background, the conditions of the sky, whether it is cloudy, clear; we take into consideration the temperature, the wind direction, the sun; in what position you are standing. We usually pretty well travel completely about 360° around the generator during the course of the training period where you get probably most of the variables in there.

MR. TUCKER: I have no other questions.

REDIRECT EXAMINATION

BY MR. CAWELTI:

Q. In this smoke school you have just described, is the [34] Ringelmann chart described in U.S. Bureau of Mines 7718 dated August 1, 1955, is that used at that school in terms of training the personnel there?

A. No, sir.

Q. Can anyone graduate from that school other than public employees in enforcement work?

MR. TUCKER: I object to that question. It has nothing to do with whether the school is competent or incompetent, and whether the people who graduate are competent or incompetent.

MR. CAWELTI: I think it is a very material point. A person charged ought to know whether or not he is violating the law. If there is no way he can be trained in the same way the enforcement people can be trained, there is no way he can himself know in advance whether or not he is violating the law.

THE COURT: Is this man in such an official position that he could answer that question? There is no foundation for the question at all.

MR. CAWELTI: I simply asked him if he knew. If he doesn't know, he can say so. I think he does know.

THE COURT: You can answer the question whether you know or not.

Q. (By Mr. Cawelti) Do you know, Mr. Taylor, whether persons who are not publicly employed in enforcement work can be graduated from the smoke school you graduated from; do you know?

A. May I ask you what you mean by "graduated"?

Q. Certified, or given a certificate as having passed.

A. Like I said before, it has been the policy of the [35] division not to do this.

Q. And the practice of the division not to do it?

A. Pardon?

Q. And the practice of the division not to do it, the policy and the practice of the division. They have not certified anyone.

A. As far as I know. I don't do the certifying.

MR. CAWELTI: Thank you.

RECROSS EXAMINATION

BY MR. TUCKER:

Q. Mr. Taylor, is anyone allowed to attend this so-called smoke school?

A. Yes, sir.

MR. TUCKER: I have no other questions.

Q. (By the court) The certification is only that you have attended; not certification one has developed expertise in the field; is that correct?

A. No, sir. I think the certification is the expertise.

THE COURT: All right. I understand now.

MR. CAWELTI: I believe that concludes the evidence the plaintiff would like to put on. It might be an appropriate time for lunch break.

THE COURT: I think so. Court will be in recess until 1:15 this afternoon.

AFTERNOON SESSION, APRIL 23, 1971, 1:15 p.m.

THE COURT: I understand you have rested.

MR. CAWELTI: That's correct, your honor.

MR. TUCKER: I would like to call Mr. Joseph Palombo as a rebuttal witness.

[36] JOSEPH PALOMBO, JR.,

called as a witness by and on behalf of Respondent, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. TUCKER:

Q. Would you state your name and address, please?

A. My name is Joseph Palombo, Jr., 4210 East 11th Avenue, Denver.

Q. What is your occupation?

A. I am presently assistant director, Division of Air Pollution Control, State Department of Health. I formerly was a section chief when Air Pollution was in a section, and acting director until March 1 of this year.

Q. How long were you the acting director of the Air Pollution Control program in Colorado?

A. Since its inception. Since its inception as a state program in 1963.

Q. Through—

A. Through 1970.

Q. Are you familiar with the smoke school that is put on and conducted by the Department of Health?

A. Yes, I am.

Q. And how does this school operate?

A. The school is set up to train smoke inspectors to be able to determine various shades of smoke. We actually divide the school into two separate issues, one dealing with black smoke, and one dealing with white smoke. Ringelmann numbers are applied to black smoke. Equivalent opacity, which is another way of describing the obstruction to which a smokestack has an effect, is the other measure. In other [37] words, a Ringelmann Number 1 is equivalent to 20 percent opacity. These are not synonymous terms, although there is a correlation between the two. We train our inspectors to visually get a mental image of the stack emission as it is metered against a smoke meter.

Now, in our school we do not use the Ringelmann chart as the mental image that the inspector first gets,

but we rather use a meter, and the meter is, in fact, calibrated, using Ringelmann numbers, so that when we put an emission through the smokestack, ring the bell and declare what number Ringelmann or equivalent opacity that smoke happens to be, the inspector can get a mental image of it. We will put smoke of a density number 2 Ringelmann, or 40 percent opacity, tell the observer that what he is seeing is that shade. It takes the place of the chart. It is equally acceptable to plant a mental image in the observer's mind so that when he is in the field he can correlate that mental image to what he sees. The smoke school is operated once a month during the spring, summer and fall months. During the winter we operate it a little less frequently, depending on the weather. The inspectors are required to come out at least once every six months. However, we encourage them to come out as often as the school is given so that they can continually refresh this mental image they have of what a number 2 or number 3 Ringelmann looks like, or its equivalent opacity.

We certify by certificate only those who are qualified, who have passed the examination as was described by Mr. Taylor earlier. The school, however, is open to all people who want to come out and see how we measure the smoke [38] and how we make our determinations. As a matter of fact, we have had a number of industrial people come out and go through the same procedures that the inspector goes through.

Q. Do some people fail to qualify and to be certified after they have gone through the school?

A. Our experience has been that there are a number of inspectors who can come back to the school time after time, and have no difficulty in passing the examination. There are others who have quite a bit of difficulty in being able to relate this mental image back to the metered amount of smoke going through the stack. Not all people can qualify and not all people, therefore, are certified.

Q. Did you hear Dr. York's testimony in regard to methods other than the opacity equivalent and the Ringelmann readings to measure particulate emissions?

A. Yes, I did.

Q. Are you familiar with these other methods other than the Ringelmann and opacity?

A. Yes, I am. I would assume that the method Dr. York was referring to is the method where measurements are made in the stack of the material going through the stack and actually you collect the material and go through several procedures to determine the weight of material per volume of gas.

MR. CAWELTI: Your honor, I don't think there is any question pending right now. He asked him if he was familiar with other methods and his answer is yes. I don't know what the witness is responding to now.

Q. (By Mr. Tucker) What are these other methods?

A. Okay. The method I attempted to describe, the method [39] of going into the stack and actually metering the particulate in the stack, a unit weight per unit volume of gas going through the stack. This method is recognized, as a matter of fact, the statute under which our department operates uses both standards, both the particulate measurement in the stack by the weight per volume basis, as well as the Ringelmann opacity standard. As a matter of fact, the statute does not indicate you have to pass one or the other, but indicates you have to pass both; either one are applicable.

Q. What effect does moisture have on the appearance of an emission from the stack?

A. Well, as Dr. York pointed out in his testimony, there are frequent occasions when a stack contains not only particulate emissions, but moisture. The moisture usually comes out of the stack and after a period of time depending on climatic conditions, will dissipate.

As was pointed out, a very heavy, humid day, the moisture will be in the stack plume for a longer period

of time than it would be in a hot, dry day. Trained inspectors on some days would not be able to read a stack because of the moisture content. The moisture would continue to persist in the plume for a period of time so that they could not make a reasonable determination of the visible emission. However, there are days when the moisture dissipates quite rapidly and the smoke plume, the particulate matter, continues on and then the trained inspector can again look at that plume and make a determination.

Obviously, moisture does have an effect but a person qualified and trained to recognize this as a disadvantage or shortcoming of the method can overcome this in his field [40] inspection.

Q. Does the smoke school here in Colorado instruct the instructors in regard to the effects of moisture on stack emissions?

A. Yes. Most of our members have—most of the people who attend the school have been given material of the background of the Ringelmann standard and its application and the subsequent application of equivalent opacity as an enforcement tool.

Q. What degree of accuracy must a person attain in reading the Ringelmann or the opacity, prior to being certified by the school?

A. In order to be certified, he must not exceed 5% of the 50 readings, 25 black, 25 white, in either direction. In addition, if he has one reading in excess of one full Ringelmann number, or 20 percent, his results are thrown out. In other words, he can still fall within 5%, but if he has one reading completely in error by one Ringelmann number, or a 20 percent figure, his results are thrown out and he cannot be certified.

Q. Does this degree of accuracy have any effect on the policy of the division in regard to the Ringelmann and opacity citations by the inspectors?

A. It does in this regard: My inspectors and field people have been instructed that we do not cite violators who fail by the precise number as stated in the statute. If I may explain that the statute says that no person shall emit a shade of smoke as dark or darker than number 2. We don't normally cite a violator if he has a Ringelmann number [41] more than two. We don't cite a person if he has the 40% or Ringelmann 2. As a matter of fact, in the case before us, the citations were for equivalent opacities in the range of 10 to 40% above the stated standard.

MR. TUCKER: I have no other questions.

CROSS-EXAMINATION

BY MR. CAWELTI:

Q. I think you may have simply misstated, or I may have misunderstood you. You said that all that qualified were certified at the smoke school. Now, did you mean by that that I could go there, and if I showed the necessary competence I could be certified?

A. I think you misunderstood. All local or state control officials are certified. You may attend the school and go through the procedures, but you will not receive a certification.

Q. Why is that?

A. This is a health department policy. This matter has been brought to the attention of the State Board of Health when they had prime responsibility for setting policy in the department, and subsequently has been brought to the attention of the Air Pollution Control Commission. Neither one of these bodies who are policy-making bodies have elected to change this official procedure.

Q. That still doesn't answer the question about why it is that policy, does it?

A. I can only give you my opinion. I think it is probably because—

MR. TUCKER: I would object, your honor. He has stated that this policy has been set by the Board of Health [42] and Air Pollution Commission, neither of which he is a member of, nor are they here today.

THE COURT: Objection sustained.

Q. (By Mr. Cawelti) I have heard it stated that the reason for the policy is that there would not be a conflict of experts in a court such as this over the amount of the emission. Is there any truth to that?

MR. TUCKER: I object to that question. What he has heard. The witness, again, can't speak for the commission or the board, and if counsel had intended to get behind the reason of this, he should have subpoenaed someone from the board commission to testify today.

THE COURT: Objection sustained.

MR. CAWELTI: I guess we won't find out the reason.

Q. (By Mr. Cawelti) I believe you stated, Mr. Palomba, that the requirement of the law was you had mentioned there is a particulate measurement standard in the statute concerning emissions such as the particulate measurements that Dr. York testified to, and you said that the law requires that both the Ringelmann or opacity standard and the particulate standard must be met?

A. Well, it is my understanding of the law that it does not substitute one for the other. It indicates both standards and does not say you may be excused if you meet the one rather than the other.

Q. There is no circumstance where you can use the particulate standard in lieu of the—

A. Yes, in the old statute there was, in the statute under which this case originally arose there was a provision which stated two things. One, that the method of testing must [43] be approved by the division prior to the testing, and that the division, again the State Department of Health, shall have made a determination that

there is a correlation between the materials being measured in that the particulate loading is equivalent to the density or opacity reading. This was a provision in the case before the case that we are dealing with. Neither of these determinations were made.

Q. And so the Western Alfalfa could not use this substitute because you had not made these determinations; your division, is that right?

A. I think the testimony in the hearing at the time will establish that the division made a determination that there was no correlation between the two, and, therefore, that test could not be substituted.

Q. I think the record speaks for itself in that regard.

A. That is my recollection of the record.

Q. You spoke of a trained inspector could make allowance for the presence of steam in emission. Tell me, do you have any device in your smoke school to emit steam so that the inspector can observe it along with the other matter that is being emitted?

A. No, we don't have any method of introducing steam.

Q. In other words, this training, then, is of just describing to him what he might see, rather than him actually having a chance to do it before he cites somebody for a violation?

A. In a sense, yes. Our concern is with the particulate emission.

Q. Please answer my question unless there is a very necessary explanation to qualify your answer.

[44] A. If I may explain my answer, I would like to qualify it. Our concern is with the pollutant emission, and the fact that you can see it testifies to the fact that there is a pollutant being emitted into the atmosphere. Water vapor alone is not considered a pollutant. Therefore, we don't inject it into our testing procedure. We ignore it when making our readings in the field.

Q. Nor do you give your inspectors any opportunity for practical experience in determining how much is

steam and how much is a prohibitive contaminant. There is no way they get a chance to practice on this without actually being involved with citing somebody for a violation.

A. Our experience would be gained in the field, actually viewing a stack where steam was a problem.

Q. In taking action, it could eventually lead to a cease and desist order?

A. That is correct.

Q. You recall Dr. York's testimony on other problems on Ringelmann. I am wondering, and would like to inquire as to the extent to which your inspectors are trained to cope with these problems. For example, are emittents of various particle size, or contaminants of various particle size, used in your smoke so that they can learn the difference between reading one type of emission versus another type?

A. Again, we make no distinction on particle size because of the fact that we are dealing with a visible pollutant which, if visible, indicates that there is something going into the air. We are not concerned, relatively speaking, with the particle size, because if the material is going into the air and remaining airborne, it is an air pollutant, and [45] we are concerned with—

Q. Is it a fair statement to say you are not concerned —or attempting to determine how much is being emitted, rather than what it looks like?

A. I don't think that is quite right. For example, in the use of Ringelmann numbers, Dr. York pointed out in his testimony Ringelmann is a very satisfactory method of determining efficiency of combustion dealing, let's say, with a combustion process. If you have a Ringlemann 5 as Dr. York described, which is black, you have a terribly inefficient combustion chamber which is putting out a lot of carbon particles. On the other hand, if you have a Ringelmann 1 or less, you have a much more efficient device. You have much more efficient combustion, so

I think you do get, if I may paraphrase it, a semi-quantitative determination as to the amount of material going into the air. Quite obviously, if you have heavy particles, there is going to be much more than that would be if you have light, and in some cases you may have lighter particles which give a denser appearance than the heavier particles.

Q. If you have a fine particulate emission with the same amount in, say, volume, coming out, a finer particulate will cause you to be cited more readily than a less fine particulate?

A. I would hope so, because I think the fine materials are the materials we are concerned with from the standpoint of effects on health. I would assume anybody putting out fine respirable material would be cited if they exceeded the density of 40% opacity under the old law, or the Ringelmann 2.

[46] Q. You are talking now between very fine and not so fine. Ordinarily, you are more likely to get cited with a finer material being emitted?

A. I can't answer that generally.

Q. And you are more likely to be cited if the lighting conditions are such that it looks darker from one angle than another? It is the darkness thing that causes the citation to be given to you, is it not, rather than the amount that is coming out?

A. No. Well, yes, in a sense it is.

Q. Okay.

A. It is apparent to the visible emission that you have it. In one view you may have an emission that looks darker from one angle than it does from another angle, this is true, but—

Q. If the inspector is standing at one angle, you will get cited, and vice versa?

A. Not necessarily. The fact that you can see the emission is the fact that there is an emission. Then we

make our determination as to whether or not it is in violation of the standard.

Q. But you are subject to being cited simply because it is a little darker from one angle than another. It could happen.

A. It could happen. Our trained inspectors do not do that.

MR. CAWELTI: No other questions.

THE COURT: I do.

Q. (By the Court) On this schooling, as to the [47] observing of white smoke out of a stack of some sort, is there any difference in the white steam that comes out on a cool morning and the white smoke that comes out of your testing stack? They are both white.

A. That's correct. If water pollution, water vapor alone were polluted, and if it had the appearance of white smoke, they could be cited equally. White smoke and water vapor or moisture in the air obscure the observer's ability to see through the plume, and this is, in effect, what we are measuring.

Q. Just measuring the opaque qualities of the white smoke?

A. That's correct.

Q. Whether it is steam or smoke.

A. That's correct. If you are in a dense fog, you are about 100 percent opaque or 100 percent equivalent opacity. It doesn't make any difference if that is the result of dense fog or dense smoke. You still can't see through it.

Q. You come to your conclusion as to meeting the standard, not as to whether or not it is steam or some other material, but as to its density.

A. Well, in our actual measurement in the field; however, water vapor is not considered a pollutant by statute.

Q. How can you tell the difference by appearance?

A. In a plume that contains steam, you can very readily see where the steam trails off and the pollutant continues. It is quite visible.

THE COURT: Thank you very much. You may step down.

[49] MR. TUCKER: We have no other witnesses, your honor.

MR. CAWELTI: We have nothing to offer by way of rebuttal. I would like to go ahead with my final remarks.

THE COURT: You may.

(Argument by Mr. Cawelti and Mr. Tucker.)

THE COURT: The court will grant 10 days for your brief, Mr. Cawelti, and 10 days for you to reply to the brief, Mr. Tucker. Court will reserve and take the matter under advisement and will await the final briefs and decide this as soon after that as possible. It is agreed, though, that regardless of the constitutional ruling of the court, the matter is to be remanded back.

MR. CAWELTI: Well, with this qualification: If the court agrees with our interpretation, then it wouldn't have to be remanded.

THE COURT: Court is adjourned.

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[Reporter's Certificate Omitted in Printing]

IN THE DISTRICT COURT IN AND FOR THE COUNTY OF WELD AND STATE OF COLORADO

Civil Action No. 19974

[Filed in the District Court, Jul. 28, 1971, Mary M. Connell, Clerk]

[Title omitted]

**FINDINGS AND JUDGMENT**

THIS MATTER coming on for hearing on the Amended Complaint for review pursuant to Chapter 66, Article 29, Section 13, 1963 C. R. S., amended, for declaratory relief against a ruling of the Air Pollution Variance Board of the State of Colorado; the Petitioner appearing in Court in person and by and through Donald D. Cawelti, Esq., S. Robert Houtchens, Esq., and George D. Blackwood, Jr., Esq., its attorneys; the Respondent appearing in Court in person and by David Foster, Esq., and William Tucker, Esq., its attorneys; and the Court having heard the testimony of witnesses and the arguments of counsel, and a motion having been made for permission to file briefs in relation to the issues herein, and the Court granting such motion did continue the matter pending filing of written arguments and supporting briefs; and the Court having considered the testimony elicited at the hearing, and arguments of counsel and supporting briefs, and now being sufficiently advised,

DOTH FIND;

That the hearing conducted by the Air Pollution Variance Board on September 11, 1969 and October 16, 1969, was concerned only with the question of an alleged violation by Petitioner of The Air Pollution Control Act of

1969, as amended, and the resulting Cease and Desist Order promulgated by said Air Pollution Variance Board.

THE COURT FURTHER FINDS that one of the questions at issue at the hearing before this Court concerned whether or not due process of law and equal protection of the law contrary to the 14th Amendment of the Constitution of the United States and Section 25, Article 2 of the Constitution of the State of Colorado was denied by the acts of the Respondent herein by the use of the Ringelmann Chart as provided in Chapter 66, Section 29, Article 5(2), C. R. S., 1963, as amended in 1967, and the Court finds against the Petitioner herein and for the Respondent and holds that the use of the Ringelmann Chart for the measurement of opacity is not unconstitutional, and the resultant Cease and Desist Order based thereon was all in accordance to law.

THE COURT FURTHER FINDS that the findings of the Air Pollution Variance Board were conducted pursuant to the Administrative Code and ample evidence was presented to sustain the ruling of the Air Pollution Variance Board.

THE COURT FURTHER FINDS that while the Ringelmann Chart test is a good and sufficient basis to institute proceedings or a hearing before the Air Pollution Variance Board, it is evident by the testimony, both before the Board and this Court, that is is not the only test relating to matters set forth in The Air Pollution Control Act concerning violations thereof and that careful consideration should be undertaken by the Board if there is presented to them evidence resulting from a more precise test of the pollutant emissions. It is noted by the Court that in Respondent's brief that the Petitioner's act of retaining an engineering firm, to-wit: Stearns-Rogers, to conduct a particulate study of the emissions from its plant in July 1969, and was objected to for the reason it was done without notification to the Department of Health of such test, thus resulting

in the Department not having present personnel to determine if the method was acceptable. If this be objectionable, than it is likewise objectionable if the Department of Health makes its examination of opacity and pollutants without the presence of personnel of the person or company being examined for possible violation of The Air Pollution Control Act.

THE COURT FURTHER FINDS that the State only permits the certification of experts in the use of the Ringelmann readings concerning opacity to persons employed by the State, thus precluding possible challenge of the methods employed in obtaining the readings of the Ringelmann Chart and challenging any findings made by the so-called experts at the time of examination.

THE COURT FURTHER FINDS that in the conduct of hearings before the Variance Board that it is encumbant upon the Respondent to the Cease and Desist Order to be burdened by presenting a preponderance of the evidence to show that they were not in violation of The Air Pollution Control Act rather than the State carrying the burden of proof proving that the Respondent was guilty of such violation.

THEREFORE, THE COURT ORDERS that the matter be remanded to the Air Pollution Variance Board of the State of Colorado for further proceedings in relation to matters concerning the granting of a variance sustaining or modifying the enforcement of a new emission standard rule or regulation or enforcement order.

Done in Chambers this 28th day of July, 1971.

BY THE COURT:

/s/ Donald A. Carpenter
District Judge

IN THE DISTRICT COURT IN AND FOR
THE COUNTY OF WELD AND
STATE OF COLORADO

Civil Action No. 19974

[Title Omitted]

**MOTION FOR AMENDMENT OF FINDINGS AND JUDGMENT**

COMES NOW, the Petitioner and moves the court to amend its Findings and Judgment dated July 28, 1971, by entry of an order remanding the proceedings to the Respondent with direction to conduct a new hearing on the issue of whether Respondent was in violation of the Air Pollution Control Act as charged in the Cease and Desist Order with such hearing to be conducted in accordance with the court's findings and conclusions of law. In support of this motion, Petitioner shows unto the court:

1. The court has found in its order dated July 28, 1971, that improper procedures were used by the Department of Health in attempting to convict Respondent of a violation, to wit:

a. ". . . it is likewise objectionable if the Department of Health makes its examination of opacity and pollutants without the presence of personnel of the person or company being examined for possible violation of the Air Pollution Control Act."

b. ". . . the State only permits the certification of experts in the use of the Ringelmann readings concerning opacity to persons employed by the State, thus precluding possible challenge of the methods employed in obtaining the readings of the Ringelmann Chart and challenging any findings made by the so-called certified experts at the time of examination."

c. The Respondent Board refused to give any consideration to the more precise objective test results presented to it respecting the emissions from Petitioner's plants.

2. In addition, the Board accepted the testimony on opacity notwithstanding the fact established in this record that the examiner did not use the Ringelmann Chart referred to in the statute or any instrumentation whatsoever.

3. The order and decision of the court was apparently based, at least in part, upon the following finding contained in the court's order, to wit:

> "THE COURT FURTHER FINDS that in the conduct of hearings before the Variance Board that it is encumbant upon the Respondent to the Cease and Desist Order to be burdened by presenting a preponderence of the evidence to show that they were not in violation of The Air Pollution Control Act rather than the State carrying the burden of proof proving that the Respondent was guilty of such violation."

The legal conclusion stated by the court in the foregoing finding is in direct contradiction to the law as set forth in the Air Pollution Control Act in § 66-29-12 sub. 7 which reads as follows:

> "In all proceedings before the Air Pollution Variance Board with respect to any alleged violation of any emission standard or order, the burden of proof shall be on the Division (of Administration of the State Department of Public Health)."

Inasmuch as this statutory provision requires that the Department of Health proceed with carrying the burden of proof in showing the existence of a violation, it becomes even more important that the objectionable procedures used by the Department of Health as outlined above not be permitted in proceedings before the Air Pollution Variance Board.

The court's attention is respectfully directed to the attached copy of the recent opinion of the Commonwealth Court of Pennsylvania in *Bortz Coal* v. *Air Pollution Commission*. In this decision dated July 9, 1971, the appellate court of Pennsylvania found substantially the same deficiencies in the nature and quantum of proof provided by the Department of Health as the Court found in this case, and the court there remanded the proceeding to the Variance Board "for the purpose of establishing substantial evidence of the alleged air pollution violation of appellant and to receive evidence in accordance with this opinion."

Respectfully submitted.

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